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THE STATISTICAL COMPLEMENT OF PURE ECONOMICS.

SUMMARY.

Representative constructive workers in pure economics have conceived of an inductive statistical complement without whose development the *a priori* instrument must lack concrete effectiveness, 1.—The most important statistical processes that must be employed in the elaboration of the inductive science are described, 8.—Steps which have already been taken in the attempt to bring together pure economics and the theory of statistics in the treatment of concrete material are illustrated, 23.—From a survey of what has been accomplished it is inferred that fecund scientific ideas as well as abiding practical results are to be gained from the development of the *Statistical Complement of Pure Economics*, 33.

In the case of every science it is wise economy to make an appraisement, from time to time, of dominant conceptions and prevailing methods. Like the relative values of material commodities the relative values of ideas and processes shift with the passing of time, and the appearance of new problems amid the pressing exigencies of practical life requires that we frequently take stock of our scientific capital, if the expenditure of energy is to yield its proper return. The economist particularly should

attend to the changing efficiency of his scientific machinery, for he himself has taught that the value of capital is proportional to its yield, and that the maximum yield is in the direction of greatest social service.

Of the investigators who, since Ricardo's day, have contributed most to the development of scientific economics, there are four [1] whom the consensus of the opinions of their colleagues would certainly not place below the first rank: Cournot, Jevons, Edgeworth, and Pareto. All four have contributed a very large part of their work to the elaboration of the deductive phase of our science, but each of them has conceived of an inductive statistical complement of the pure science without whose development the *a priori* instrument must lack concrete effectiveness. They have all proceeded on the assumption that the greatest need, at the time of their writing, was a correct theory of economics, in order to afford a first approximation to reality and to show what is required to solve concrete problems. But they have likewise made fundamental contributions to the inductive statistical complement of the pure science.

It is the object of this paper:—

I. To show that these representative constructive workers in the elaboration of pure economics have had in mind an inductive statistical complementary science;

II. To describe and illustrate the fundamental statistical processes that must be employed in the inductive science;

III. To indicate the manner in which the theory of economics and the science of statistics are being brought together in the development of the *Statistical Complement of Pure Economics.*

[1] These four economists have been named because they conspicuously illustrate the points I wish to make. Within the limits of economists of the first rank, their general views are, I think, representative.

I.

One of the curious facts in the history of Cournot's varied and always profound work is that, while one of the chief merits of his little treatise on the mathematical principles of wealth consists in his discovery and illustration of the power of mechanical and geometrical methods in the treatment of certain questions in economics, he himself has said that the most fertile instrument of inquiry will be found to be the statistical method:—

> Si nous restons dans l'ordre des causes secondaires et des faits observables, le seul auquel la science puisse atteindre, la théorie mathématique du hasard . . . nous apparaît comme l'application la plus vaste de la science des nombres, et celle qui justifie le mieux l'adage: *Mundum regunt numeri*. En effet, quoiqu'en aient pensé certains philosophes, rien ne nous autorise à croire qu'on puisse rendre raison de tous les phénomènes avec les notions d'étendue, de temps, de mouvement, en un mot, avec les seules notions des grandeurs continues sur lesquelles portent les mesures et les calculs du géomètre. Les actes des êtres vivants, intelligents et moraux ne s'expliquent nullement, dans l'état de nos connaissances, et il y a de bonnes raisons de croire qu'ils ne s'expliqueront jamais par la mécanique et la géométrie. Ils ne tombent donc point, par le côté géométrique ou mécanique, dans le domaine des nombres, mais ils s'y retrouvent placés, en tant que les notions de combinaison et de chance, de cause et de hasard, sont supérieures, dans l'ordre des abstractions, à la géométrie et à la mécanique, et s'appliquent aux phénomènes de la nature vivante comme à ceux que produisent les forces qui sollicitent la matiere inorganique; aux actes réfléchis des êtres libres, comme aux déterminations fatales de l'appétit et de l'instinct.[1]

Indeed, altho Cournot is known to economists almost entirely through his *Recherches*, he has made very great contributions towards the construction of an inductive, statistical science. His treatise *Exposition de la théorie*

[1] Essai sur les fondements de nos connaissances et sur les caractères de la critique philosophique, vol. i. pp. 64–65.

des chances et des probabilités, which was outlined at least two years[1] before the publication of his *Recherches*, and which, according to a competent critic,[2] is not excelled in philosophic acumen by the works of Laplace, had as its essential aim to show that the theory of probability is the foundation of all induction, the basis of statistical methods and the justification of the ancient adage, *Mundum regunt numeri.*

His very lofty conception of statistics is described in his chapter "De la statistique":—

> Pour que la statistique mérite le nom de science, elle ne doit pas consister simplement dans une compilation de faits et de chiffres: elle doit avoir sa théorie, ses règles, ses principes. Or cette théorie s'applique aux faits de l'ordre physique et naturel, comme à ceux de l'ordre social et politique. En ce sens, des phénomènes qui s'accomplissent dans les espaces célestes peuvent être soumis aux règles et aux investigations de la statistique, comme les agitations de l'atmosphère, les perturbations de l'économie animale, et comme les faits plus complexes encore qui naissent, dans l'état de société, du frottements des individus et des peuples.[3]

Jevons has generously conceded to Cournot priority in the general mathematical conception of economics and in the logarithmic method of treating index numbers, but his kinship with Cournot in point of view, philosophic temper and method of inquiry did not end with these two subjects. A very large part of Jevons' *Principles of Science* had been eloquently set forth in Cournot's *Essai sur les fondements de nos connaissances*, and in his *Traité de l'enchaînement des idées fondamentales dans les sciences et dans l'histoire*. The key to the philosophic position of

[1] See the date of the letter from Poisson, printed on page vi of the Théorie des chances.

[2] Czuber, Wahrscheinlichkeitsrechnung, p. 15.

[3] Exposition de la théorie des chances et des probabilités, p. 184.

both is in their effort to lay the foundation of all induction in the theory of probability.

Jevons himself has told us of his early respect for the statistical method and of his wish to excel in its use. After the publication and gratifying reception of his essays on "A Serious Fall in the Value of Gold Ascertained" and "The Coal Question," he wrote, "I distinctly remember thinking in Sydney that, if there were one thing I should wish to be, it would be a recognized statistical writer. How strangely my wish has been fulfilled!" [1]

The complementary character of inductive, statistical economics and pure economics he tersely describes in his Theory of Political Economy:—

> I know not when we shall have a perfect system of statistics, but the want of it is the only insuperable obstacle in the way of making Economics an exact science. In the absence of complete statistics, the science will not be less mathematical, though it will be immensely less useful than if it were, comparatively speaking, exact. A correct theory is the first step towards improvement, by showing what we need and what we might accomplish.
>
> The deductive science of Economics must be verified and rendered useful by the purely empirical science of statistics. Theory must be invested with the reality and life of fact. [2]

Like Cournot and Jevons, Professor Edgeworth was early interested in the methodology of inductive social sciences. Shortly after the publication of *Mathematical Psychics*, he began a series of studies in the Philosophical Magazine and in the Journal of the Statistical Society which seems to have had the threefold object: (1) of inquiring into the philosophic basis of the methods of induction used in the so-called exact sciences, notably of the Method of Least Squares and of the Law of Error; (2)

[1] Letters and Journal, p. 223.

[2] Third edition, pp. 12, 22. Cf. Principles of Science, chap. xxii. End of the section on "Illustration of Empirical Quantitative Laws."

of exhibiting the utilitarian character of the ultimate foundation of inductive inference; (3) of fashioning out of the material of the methods of the natural sciences an inductive instrument fit for the use of the social sciences.

His creative activity in this direction has been continuous. Only very recently he has brought to a conclusion an investigation, dating as far back as 1898, the purpose of which is the development of a generalized method of representing statistical data by mathematical formulæ.[1] His principal thesis will, I am sure, fructify abundantly in the inductive stage of economic science which we are entering:—

> The representation of numerical observations by a mathematical formula is then most perfect when *à priori* it is demonstrable that the formula tends to correspond to the facts, and actually the correspondence proves to be close.
>
> In cases where the normal law is evidenced both by *à priori* reasoning and observed fitness, there can be no hesitation about preferring that law. The rub is where the law is no longer accurately fulfilled, as in the case of unsymmetrical groups of observations. *The main thesis of this paper is that preference should be given to formulæ which have a certain affinity to the normal law, which are regarded as due to some modification of the conditions under which the normal law arises.* Those conditions are mainly two: the co-operation of an indefinite number of independent agencies and the smallness of the effect of each agency on the total result. The existence of these conditions *in rerum natura* is probable prior to the observation that the normal law is of frequent occurrence. The prevalence of that law attests the prevalence of the conditions from which it is deducible. *It is a probable hypothesis that some modification of those conditions results in a somewhat abnormal law of frequency.*[2]

Without, at the time, knowing of Professor Edgeworth's general thesis, I gave, in my study on "The Efficiency

[1] Journal of the Royal Statistical Society, December, 1898; March, 1899; June, 1899; September, 1899; March, 1900; September, 1906.

[2] Journal of the Royal Statistical Society, December, 1898, pp. 671, 674. I have taken the liberty of italicizing the two sentences to which I wish particularly to draw attention.

Theory of Wages," a particular illustration [1] of the advantage of treating skew curves in social statistics as having their origin in a disturbed condition of normal distribution. To this illustration I shall recur.

Since the publication in 1896–97 of the *Cours d'économie politique*, Professor Pareto has divided his time between deductive and inductive inquiries. He has devoted himself to investigations in two directions: (1) to a simplification and generalization of the mathematics of his pure economics, which appears in the appendix of his *Manuale di Economia Politica* (1906); and (2) to the development of methods of interpolation for use in inductive inquiries, which appears in *Tables pour faciliter l'application de la méthode des moindres carrés* (1898), and in the series of articles now in course of publication in the Giornale degli Economisti on "L' Interpolazione per la ricerca delle leggi economiche."

Perhaps it would be an exaggeration to speak of a Pareto school of inductive economics in Italy, but surely it is true to say that his inductive study of the distribution of income supplied instruments for the breaking of the new ground that has been cultivated with profit by Professor Benini and Dr. Bresciani.

It will be granted, I think, that Professor Pareto has reached the most general *a priori* treatment of the whole problem of production and distribution, and I therefore regard as of great value his opinion as to the most promising direction of investigation in economics:—

> The progress of political economy in the future will depend in great part upon the investigation of empirical laws, derived from statistics, which will then be compared with known theoretical laws, or will suggest derivation from them of new laws.[2]

[1] Economic Journal, December, 1907.

[2] "Il progresso dell' Economia politica dipenderà pel futuro in gran parte dalla ricerca di leggi empiriche, ricavate dalla statistica, e che si paragoneranno poi colle leggi teoriche note, o che ne faranno conoscere di nuove. Quelle leggi empiriche sono in sostanza date dall' interpolazione dei dati statistici, onde da ciò appare la grande importanza di tale operazione." Giornale degli Economisti, Maggio, 1907, p. 366.

II.

Pure economics and the theory of statistics have passed through similar phases in their assumption of scientific form. A characteristic of pure economics has been the progressive subjugation of outlying territories by means of the calculus of value: a characteristic of theoretical statistics has been a similar conquest by means of the calculus of probability. The calculus of value and the calculus of probability have been the two engines which have extended the dominion of social science.

Some years ago, in his address on "The Present Position of Economics," Professor Marshall observed, in referring to Ricardo and his followers, that "they did not make their drift obvious. They did not make it clear to others, it was not even quite clear to themselves, that what they were building up was not universal truth, but machinery of universal application in the discovery of a certain class of truths" (p. 19). . . . "The true *raison d'être* of theory is that it supplies a machinery to aid us in reasoning about those motives of human action which are measurable." (p. 22.)[1]

Similarly, the theory of probability as applied to the social sciences is not a body of concrete doctrine, but rather a machinery of general application in the study of the mass-phenomena upon which the social sciences rest.

Particular directions in which the theory of probability has yielded results where other instruments have proved inadequate are in

(1) The evaluation of the most probable amid contingent values;

[1] I do not stop to exploit the fact that in later years Professor Marshall developed the doctrine that the measurable motives with which the economist is concerned are investigated only in so far as they are manifested in the action of large groups, and that the pure science of economics, therefore, postulates the mass-phenomena which it is particularly the province of statistics to describe. Principles of Economics, 4th edition, Book I., chap. v.

(2) The definition and discovery of the type amid variety;

(3) The derivation of the continuously variable from the discontinuously variable.

These three processes put the investigator in the way of resolving complex phenomena into the relations of their constituent elements. The first two processes I shall deal with only to the extent of briefly describing and illustrating them. The third shall be given greater attention, in as much as its importance has not received, until very recently, the emphasis which has been given to the other two.

The evaluation of the most probable amid contingent values is essentially the problem of determining the reliability of a mean and the reliability of functions of means.

The problem may be illustrated by considering this question: Suppose it is discovered that in a given population the average stature of 1,000 wives is less by x inches than the average stature of 1,000 female adults selected at random. Is the difference in the averages significant of the presence of a true cause—sexual selection or child-bearing—or is the difference attributable to chance? In what way would the importance of the difference in the averages be affected by the numbers of the individuals in the groups of which the averages were taken? This is a problem of the significance of the difference of two means, which is the simplest form of problem dependent upon the reliability of functions of means.

To arrive at *verae causae*, we must eliminate chance, and, to accomplish this end, we make use of the theory of the law of error.

Suppose we define an error as the difference between

any particular measurement, in a group of measurements, and the average measurement of the group. The law of error, then, is the law of the distribution of the series of errors about a zero point. The distribution will take the form described by the curve $\frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{x^2}{2\sigma^2}}$, where the origin is at zero, σ is the standard deviation of the measurements, and x is any particular error. The probability of an error between x and $(x+dx)$ is $\frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{x^2}{2\sigma^2}} dx$.

The "probable error" in the series of errors is that deviation either side of the origin between which and the origin 25 per cent of the errors fall. To determine the reliability of an average, it is necessary to determine the probable error of the average, and wherever functions of averages are dealt with we must determine the probable error of the functions. In case of the question just asked concerning the significance of the difference in the average stature of wives and the average stature of adult females, it is necessary to determine the probable error of the difference between the two averages.

For the solution of problems of the reliability of means and of functions of means, the most important formulæ derived by the Method of Least Squares are:

(1) The probable error of an average is $\frac{.6745\sigma}{\sqrt{n}}$, where σ is the standard deviation and equal to $\sqrt{\frac{\Sigma x^2}{n}}$, Σx^2 being the sum of the squares of the errors and n the number of the observations.

(2) The probable error of functions:—

Let $m_1, m_2, \ldots m_n$, be a series of independent quantities

whose probable errors are respectively $r_1, r_2, \ldots r_n$. Then the probable error of $F(m_1, m_2, \ldots m_n)$ is

$$\sqrt{\left(\frac{\partial F}{\partial m_1}\right)^2 r_1^2 + \left(\frac{\partial F}{\partial m_2}\right)^2 r_2^2 + \ldots \left(\frac{\partial F}{\partial m_n}\right)^2 r_n^2}.$$

In the particular case of the probable error of the difference between two means, we find by using formula (2) that the probable error of the difference is equal to the square root of the sum of the squares of the probable errors of the means. By employing the law of distribution of errors, it is easily possible to determine exactly the probability of an error of any particular magnitude. Consequently, the probability that an error should be any multiple of the probable error is equally easily determined. For example, the probability that an error should exceed twice the probable error is .1773; that it should exceed three times the probable error is .043; four times the probable error, .007. If, therefore, an observed difference between two means exceeds the probable error of the difference in any given ratio, it is possible to determine exactly the probability that the difference is due to chance. The smaller the probability that the difference is due to chance, the greater the probability that it has its origin in a *vera causa*.

Equipped with this simple instrument for determining the probable error of the differences between means, the investigator may at once ascertain the truth or folly of many theories. For example, let us turn to our question as to whether sexual selection with respect to stature occurs in modern societies. Professor Pearson[1] found, in a particular case, that the average stature of wives was 63.869 inches with a probable error of .110; and the average stature of females in general was 64.043 with a probable error of .061. The difference between the

[1] Grammar of Science, pp. 426–427.

average stature of wives and the average stature of adult females is $(63.869 - 64.043) = -.174$. The probable error of this difference is $\sqrt{(.110)^2 + (.061)^2} = .126$, which is nearly equal to the difference itself, and, consequently, Professor Pearson argues that, in this case, the difference between the two averages cannot be said to be significant.

Professor Edgeworth's "Methods of Statistics"[1] abounds in illustrations of the utility of this simple formula. As one of his illustrations, the following may be cited: In the final report of the Anthropometric Committee of the British Association, 1883, the average height of 2,315 male criminals was found to differ by two inches from the average height of 8,585 members of the adult male population. Professor Edgeworth queries whether the difference of two inches is significant of the presence of a cause or is merely accidental. The formula for the probable error of the difference of two averages gives the solution of the problem. The probable error of the average stature of criminals was .036, and the probable error of the average stature of the general male population was .018. The probable error of the difference between the two averages was, therefore, $\sqrt{(.036)^2 + (.018)^2} = .04$. This probable error is so small, when compared with the observed difference of two inches, that we are certain of the presence of a true cause. We know from the law of error that, when the probable error of the difference of two averages is .04, the probability of a difference of 2 occurring by chance is infinitely small.

The problem of the description and discovery of the type amid variety has led to two lines of inquiry connecting themselves, respectively, with the names of Galton and Pearson, and Lexis and Von Bortkewitsch.

The first inquiry is no less than an endeavor to demon-

[1] Jubilee Volume of the Statistical Society, 1885.

strate Darwinism by means of statistical methods.[1] The terms used by Darwin admit of such quantitative definition that statistical studies may be planned to test evolutionary hypotheses. The theory and technique employed in these investigations are doubtless the chief development of the theory of probability and its application since the work of Laplace. It is not intended, however, to describe here what, in general outline, is already familiar to students of *Natural Inheritance* and of the *Grammar of Science*. Economists and sociologists who will have need to employ more and more the generalizations of the science of evolution may perhaps be reminded of Professor Pearson's methodological warning:[2]—

> To the writers who talk of this result or that being due "to the relative variability of local races," who assert that a peculiarity is "a result of the correlation of two organs," or who attribute this or that change of character to heredity, to reversion or to telegony, we now simply say: What is the numerical value of the variability of which you speak? Have you a measure of this correlation? Did you test the magnitude of the inheritance of that character? What is the nature of the inheritance in the case of the character which you attribute to reversion or to telegony? Till very definite answers are forthcoming to these questions, we are not in the present state of our knowledge bound to pay much attention to those who are over ready to "explain" not only organic, but social changes by a vague use of undefined biological terms.

The problem which Professor Lexis[3] and Professor von Bortkewitsch[4] have set themselves to solve is this: Under what conditions may statistical ratios be assumed to be empirical functions of a probability which is determined by the nature of things and which either

[1] Biometrika, vol. v. pp. 17, 26.

[2] Grammar of Science, p. 372.

[3] "Geschlechtsverhältnis der Geborenen und Gestorbenen." In the Handwörterbuch der Staatswissenschaften. Also, Zur Theorie der Massenerscheinungen, and Theorie der Bevölkerungs- und Moralstatistik.

[4] Das Gesetz der kleinen Zahlen.

remains constant or varies according to law? For example, it has been observed to be a general fact that the ratio of the number of males born to the number of females born exceeds unity, and that, within a limited time and place, the ratios of males and females born fluctuate about a constant value. Is it legitimate to infer that the constant average value is predetermined by the nature of things, and that the several ratios are variations from the average effected by accidental causes? The inquiry is of the greatest importance, for it is an endeavor, not only to fix the general facts of human society, but also to determine those facts which are purely accidental.

The leading steps in Professor Lexis' argument are these: Suppose n groups of g drawings are made from an urn containing an unlimited number of white and black balls in a definite ratio. Suppose, further, that the number of white balls drawn in the n groups are respectively $m_1, m_2, \ldots m_n$. The following results will be found to be true:—

(1) The several ratios $\frac{m_1}{g}, \frac{m_2}{g}, \ldots \frac{m_n}{g}$ will arrange themselves around their mean $\frac{m_1 + m_2 + \ldots m_n}{ng.} = v$, according to the law of error;

(2) The "precision" of the distribution, which we shall call h, will be $\sqrt{\frac{g}{2v(1-v)}}$. The greater the value of h, the more closely will the several ratios cluster about their mean; and the smaller the value of h, the more widely will the ratios be scattered.

The "precision" of a distribution determined in this manner, which is the same as the method employed in games of chance, Professor Lexis calls the "combinational precision." His argument as to whether a particular

distribution of ratios is analogous to a chance distribution hinges upon the possibility of determining the precision of distribution in another way. If the respective differences between $\frac{m_1}{g}, \frac{m_2}{g}, \ldots \frac{m_n}{g}$ and their mean v be computed, then, by the Method of Least Squares, the precision of the distribution is $\sqrt{\frac{n-1}{2\Sigma x^2}}$, where x is the difference between any particular ratio and the mean of the ratios. The precision of distribution determined in this manner is called by Professor Lexis the "physical precision."

If it be found that a series of statistical ratios is distributed according to the law of error, and that the combinational precision is equal to the physical precision, then, according to Professor Lexis, the series is a *typical series* with *normal dispersion.* The deviations of the items of the series from their average may be regarded as accidental. If the distribution is according to the normal law and the physical precision is greater than the combinational precision, the series is a typical series with *infranormal* (*unternormaler*) *dispersion;* that is, the ratios cluster very closely about the mean, indicating a connection between the conditions of the successive ratios. If the distribution is according to the normal law and the physical precision is less than the combinational precision, the series is a *typical series* with *supernormal* (*übernormaler*) *dispersion;* that is, the ratios are greatly scattered about the mean, indicating, a change in the condition of the underlying probability of the series.

If the distribution does not follow the law of error, it is called by Professor Lexis a *symptomatic series.* These symptomatic series are further classified into groups, the most important of which are the periodic series and the evolutionary series, the latter indicating a progressive

change in the fundamental conditions of the phenomena under observation.

Professor von Bortkewitsch has made a special study of the Lexis theory in cases where the statistical ratios are very small numbers; *e.g.*, the number of suicides among women in small German provinces.

The problem of the derivation of the continuously variable from the discontinuously variable is essentially the problem of interpolation. In the development of this topic I should like to take as the point of departure the discussion of the problem of method and truth which has become familiar to us through the eloquence of Professor William James. My particular reason for referring to the pragmatic doctrine on this subject is to urge that the problems of truth and method which the pragmatists are endeavoring to handle are the same problems with which mathematical statisticians have been concerned; and that, however remote [1] the theory of statistics may appear from pragmatic philosophy, the statistical method of interpolation exemplifies the doctrines which are faintly adumbrated in the teaching of the new school.

In his essay Truth,[2] Dr. F. C. S. Schiller sets himself the task of explaining how pragmatism extends and alters the traditional conception of truth. His own positive conclusions may be summarized in these propositions:—

(1) Truth is a form of social valuation. "Truth, then, to be really safe, has to be more than individual valuation; it has to win social recognition, to transform itself into a common property. But how? It is by answering this

[1] The subjects are by no means so far apart as one would at first suppose. A cofounder of the pragmatic school, Professor John Dewey, has said: "Laws are not governmental regulations which limit change, but are convenient formulations of selected portions of change followed through a longer or shorter period of time, and then registered in *those statistical forms which are amenable to mathematical manipulation.*" Lecture on Ethics, New York, 1908.

[2] Humanism: Philosophical Essays, pp. 44–61.

question that Pragmatism claims to have made a real advance in our comprehension of truth. It contends . . . it is the usefulness and efficiency of the propositions for which 'truth' is claimed that determines their social recognition." "Truth is the useful, efficient, workable, to which our practical experience tends to restrict our truth-valuations; if anything the reverse of this professes to be true, it is (sooner or later) detected and rejected."

(2) The grounds of choice between rival truths are:

(*a*) Their relative utility: "Whenever we observe a struggle between two rival theories of events we find that it is ultimately the greater conduciveness of the victor to our use and convenience that determines our preference and its consequent acceptance as true."[1]

(*b*) Their relative simplicity: "When I affirm . . . that the metaphysical theory of the absolute is *false*, I only mean that it is useless, that it simplifies nothing and complicates everything."[2]

It has frequently been observed that a scientific theory, which is intended to summarize a number of facts of observation, may be likened to a curve that is drawn subject to the condition of passing through definite points. As it is possible, mathematically, to draw an indefinite number of curves through given points, so likewise it is possible to offer an indefinite number of theories in description of given facts of observation. The selection of the appropriate theory—which we call the true theory—raises the same questions as the interpolation of the appropriate curve. An examination of the grounds of the procedure in the interpolation of the appropriate curve will therefore throw light upon the problem of the choice of a true theory. I shall aim to show that utilitarian

[1] Humanism: Philosophical Essays, pp. 58–59. [2] Ibid., p. 59.

considerations determine the character of every step in the process of interpolation. Besides illustrating the authority of the principle of utility in all scientific work, a review of the principles of interpolation will serve the purpose of describing one of the most valuable instruments employed in the inductive treatment of economics.

Suppose that, with given co-ordinates, a series of points is plotted upon a surface and it is required to give a mathematical definition of a curve that will summarize the points. The two principal questions that present themselves are these:—

(1) What type of curve shall be selected?

(2) What shall be the criterion of the fit of the curve to the points?

In the selection of the type of the curve the principal grounds of choice, so far as I am aware, have been as follows: (*a*) the simplicity of the curve; (*b*) its fecundity; (*c*) its fit; (*d*) its facility of computation; (*e*) its *a priori* validity.

(*a*) The simplicity of the curve. The impossibility of rigidly defining what is simple and what is complex has not escaped statisticians. It is quite possible that from a particular point of view the equation of one type of curve might be more simple than that of another type, and yet be more complex when viewed in another light. It might, for example, have fewer constants, and, from this point of view, be more simple than another equation with a greater number of parameters. But the evaluation of the constants in the first case might entail an extremely complex operation, while, in the latter case, no difficulty would be encountered. An inflexible definition of the simple is, therefore, not offered, but it may be said that, in statistics, *simplicity is relative to the state of analysis and to the practical end in view.*

As an illustration of a statistician's reasoning, Mr. Yule's explanation of his use of Tait's formula may be instanced. Tait's formula is a description of the law of the variation with age of fertility in women. Upon the basis of the data for Scotland in 1855, Professor Tait discovered that if f were put equal to the percentage of wives of age t who in course of the year became mothers, then $f = k\ (50—t)$; or the percentage of wives who in course of the year became mothers varied directly with the difference between 50 and the age of the wives. In the case of the Scottish figures for 1855, k was equal to 1.5.

Now observe the purely utilitarian—or pragmatic—nature of Mr. Yule's argument [1] in his grounds for the use of Tait's law. He regards Tait's law as "an extremely simple law." [2] And, while it is only "a rough empirical formula," nevertheless, "for the purposes of weighting—the practical end Mr. Yule has in view—a very exact law is not essential." "Further, the simple linear law has two great advantages: (1) it permits of the immediate calculation of the relative fertilities of groups of any age-limits without the necessity of interpolating between observed results, a very useful property where different census returns give different groupings, and (2) it introduces a 'coefficient of fertility' with a direct and simple physical meaning." [3]

Here we have the choice of a simple empirical formula because of its analytical and practical advantages.

(*b*) The fecundity of the curve. As an illustration, Gompertz's formula for the value of l_x in a mortality table may be given; namely, $l_x = kg^{c^x}$, where x is the age of the group, l_x is the number who have attained the age, and k, g, c, are constants to be determined from the

[1] "On the Changes in the Marriage and Birth Rates in England and Wales during the Past Half-century, with an Inquiry as to their Probable Causes." Journal of the Royal Statistical Society, March, 1906.

[2] Ibid., p. 115. [3] Ibid., p. 116.

special data. The utilitarian reasons for the choice of this type of curve may also be noted:—

"... for the purpose of the actuary a dominant circumstance in favour of Gompertz's law is that it lends itself to problems of *joint survivorship*. The formula of Gompertz, and *this formula alone*, enables us to calculate the value of a joint life annuity from a table of the values of annuities on single lives, by finding a single life which may be substituted for the two or more joint lives."[1]

(*c*) The fit of the curve to the data. Professor Pareto's formula for the distribution of income illustrates this point. If N be regarded as the number of persons receiving an income above the value of x, then, according to Pareto's law, $N = \frac{A}{(x+b)^{\alpha}}$ or $\log N = \log A - \alpha \log (x+b)$, where A, b, and α are determined from the statistics of income. The controversy between Professor Pareto and Professor Edgeworth seemed to turn upon the question as to whether excellence of fit is a sufficient reason for regarding a particular curve as the curve appropriate to the data.

That the question of the fit of a curve is a question of utility will be made clear in the discussion below of the criterion of fit.

(*d*) The facility with which the constants of the curve may be computed. Interpolation is always a laborious process, and consequently the existence of tables for facilitating computation according to a particular method of interpolation insures the continued use of that method. For example, the tables which have been computed for the aid of statisticians using Professor Pearson's method of moments will necessarily extend the use of the method.

[1] Professor Edgeworth's article "On the Representation of Statistics by Mathematical Formulæ," Journal of the Royal Statistical Society, December, 1898, p. 672. I have taken the liberty of italicising the words "and this form alone." My debt to Professor Edgeworth, here and elsewhere, is very great.

Similarly, for the particular case of statistical data arranged according to an equi-crescent variable, the statistician will with advantage resort to Professor Pareto's table for facilitating interpolation by the Method of Least Squares.

(*e*) The "*a priori* validity" of the curve. This is Professor Edgeworth's phrase as well as his idea. According to the theory of Professor Edgeworth that type of curve is to be preferred for which there is an *a priori* demonstration that it will tend to correspond to the data, and which actually does correspond very closely. His preference for facility curves which are translated forms of the normal Gaussian curves is based upon this reasoning. In the third section of this paper I shall offer an illustration of the theory.

So far as Professor Edgeworth's reasoning is based upon the fit of the curve, it is utilitarian to the same extent as (*c*). The significance of "*a priori* validity" I take to be the utilitarian doctrine that hypotheses are not to be wasted. *Entia non sunt multiplicanda praeter necessitatem.*

The answer to our first question with regard to interpolation—namely, as to grounds for the choice of a type of formula—has now been reached. The considerations which have usually guided the selection have been the simplicity of the formula, its fecundity, its closeness of fit, its ease of calculation, its *a priori* validity. All five of these considerations rest ultimately upon a utilitarian basis.

We come now to our next question: After the choice of the type of curve has been made, what shall be the criterion of the fit of the curve to the observations? One judges of the excellence of a theory by its general accordance with the facts, and one judges of the excellence of the fit of a curve by its general accordance with observations. An attempt to give precision to the meaning

of *general accordance* will bring out the utilitarian character of our latent criteria.

If the interpolated curve is not to pass through all of the plotted points, what condition shall be fulfilled by the errors, or deviations of the points from the curve? Obviously, the possible conditions are infinite, and the choice of a particular condition has, in most cases, been made upon utilitarian grounds. Two illustrations may be given.

(1) The Method of Least Squares. This is the method most frequently used in the natural sciences, where, if anywhere, it would be supposed that utilitarian philosophy played no part. Nevertheless, "in the Method of Least Squares, as in the moral sciences, we are concerned with a psychical quantity—the greatest possible quantity of advantage."[1] The assumptions posited by Laplace in the demonstration of his theory were made because they were "advantageous in respect of convenience to the calculator and avoidance of trouble."[2] And the aim both of Laplace and of Gauss was to arrive at a solution which would minimize "the detriment incident to the errors which must in the long run be incurred."[3]

(2) The method of Cauchy. Recalling the fact that, from a purely mathematical point of view, a problem is adequately solved when the number of independent equations is equal to the number of unknown quantities, Professor Pareto remarks that the length of time required to evaluate the unknown quantities from the given equations may render the mathematical solution practically nugatory. His preference for the method of Cauchy over the usual Method of Least Squares, even when the degree of approximation attained is not so great, is based

[1] Professor Edgeworth's article on "The Method of Least Squares," in the Philosophical Magazine, November, 1883, p. 361.

[2] Ibid., p. 361. [3] Professor Edgeworth's Metretike, p. 56.

upon the greater facility in calculation. "Il metodo di Cauchy è convenientissimo per la facilità dei calcoli, ma non è sempre ottimo per l' approssimazione." "Per le ricerche statistiche, si può sempre preferire, almeno per una prima approssimazione, il metodo di Cauchy; ed usare solo in casi speciali del metodo dei minimi quadrati." [1]

III.

During the greater part of the century there has been a parallel development of the machinery of pure economics and the machinery of pure statistics. Attempts in the direction of utilizing the two for the purpose of treating concrete material have, however, not been lacking. Some of these essays in scientific realism I shall recall.

At one time the most hopeful field of exact inquiry seemed to be in the investigation of curves of demand and supply, and, notwithstanding the small yield to the great labor that has been expended in this field, it is at present cultivated with renewed enthusiasm.

Jevons' treatment of the law of demand for corn according to the figures generally attributed to Gregory King seemed to promise an immediate connection of economic theory with arithmetic results. That his figures were nearly two centuries old was sufficient reason for his not carrying his results to a practical conclusion, and he contented himself with observing: "I know nothing more strange and discreditable to statists and economists than that in so important a point as the relation of price and supply of the main article of food, we owe our most accurate estimate to writers who lived from one to two centuries ago." [2]

Perhaps the next important stage in the development

[1] Giornale degli Economisti, May, 1907, "L' Interpolazione per la ricerca delle leggi economiche," pp. 379, 385.

[2] Theory of Political Economy, p. 154.

of this phase of the question was Professor Marshall's suggestion (1) that, for practical purposes, there is no need to know the curve throughout its whole extent, as seemed to be implied in Jevons' reasoning; (2) that points on the demand curve might be obtained by considering the demand of groups differently circumstanced in the matter of income.[1]

Recently the problem has been approached from two new directions.

In 1895, after Professor Pareto had discovered a method of representing briefly the distribution of wealth in a given community, he made a preliminary investigation[2] of the question as to whether the demand for a commodity is not a function of the form of distribution of wealth. With regard to a necessity of life he observed (1) that, in case of the very rich, the demand is comparatively constant, whatever the price; and (2) that, in case of the poor, the demand is very inelastic. Assuming that the individual's demand for a necessity of life is a function of his income, he was able to derive the total demand from the individual demands, and to show in what way it would vary with the nature of the distribution of income.

So late as the present year the subject has come to the fore. Upon the occasion of the meeting of the Italian economists at Parma in 1907, Professor Benini,[3] stimulated by the fact that the economists were holding their session as one section of a general association of physical and natural scientists, urged that economists should adopt in their investigations the methods of research employed by the natural scientists. In particular, he advised the use of methods of interpolation for the dis-

[1] Principles of Economics, 4th edition, Book III., chap. iv., particularly p. 189.

[2] "La legge della domanda." Giornale degli Economisti, January, 1895.

[3] "Sull' uso delle formule empiriche nell' economia applicata." Giornale degli Economisti, November, 1907.

covery of empirical laws from statistical data, and instanced the utility of the evaluation of laws of demand and supply. In his inaugural address[1] as Professor of Statistics at Rome, he returned to the subject, proposing that the equations to the demand curves of the most important commodities be determined, their elasticities of demand be calculated, and the commodities be classified according to their respective elasticities. Professor Benini will attempt to carry out his programme in his academic work at Rome.

Perhaps the best-known empirical law of economics is Professor Pareto's law of the distribution of income, to which reference has already been made. If the incomes of a large community are tabulated in such a way that N represents the number of individuals having an income above x, then the curve $N = \frac{A}{x^{\alpha}}$ is a type of curve that will fit the statistics, A and α being two constants that are determined from the data by methods of interpolation. The equation to the curve may be written in the form $\log N = \log A - \alpha \log x$, which is an equation to a straight line. From this fact it follows that, if the logarithms of the successive rates of wages and the logarithms of the corresponding values of N be computed and plotted, the series of points will lie in a straight line. Furthermore, the value of α, which is the tangent of the angle made by the line with the axis of x, is an index of the degree of inequality of the distribution of wealth. Professor Pareto has preferred to regard the degrees of inequality of distribution as varying directly with the value of α, that is, the smaller the value of α, the less the inequality in distribution and *vice versa*. His critics have

[1] "Una possibile creazione del metodo statistico (L' Economia politica induttiva)." Giornale degli Economisti, January, 1908.

admitted his right to define the sense in which he proposes to use his terms, but have indicated that the opposite interpretation of α—namely, that the smaller the value of α, the greater the inequality in the distribution of wealth—is more in harmony with the mathematical theory of evolution and with common usage. I shall indicate some directions in which Professor Pareto's method may be employed.

Professor Bresciani,[1] utilizing Prussian figures of the distribution of income in cities, has shown that the value of α varies inversely with the size of the urban population. For example, in 1902, for cities of population between 50,000 and 100,000, the value of α was 1.56; for cities of population between 100,000 and 200,000 the value of α was 1.38; and for cities over 200,000 the value of α was 1.30.

Professor Adolph Wagner's[2] laborious investigations as to the trend of the distribution of income in Prussia offer invaluable material for the application of Pareto's method. Taking Ostpreussen as the extreme type of an agricultural province and Rheinland as the extreme type of an industrial province, Professor Wagner has tabulated the statistics of income in the two provinces during recent years. The questions which at once occur are whether there is a difference in the manner of the distribution of wealth as one passes from an agricultural province to an industrial province, and what is the trend of the variation of distribution with the flow of time. In the annexed tables, I have used Professor Wagner's figures[3] only for the incomes above 3,000 marks.

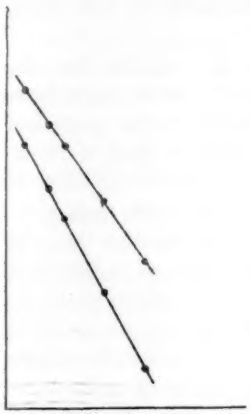
[1] "Alcuni appunti sulla distribuzione del reddito e del patrimonio in Prussia." In Festgaben für Adolph Wagner.

[2] "Zur Methodik der Statistik des Volkseinkommens und Volksvermögens"; "Weitere statistische Untersuchungen über die Verteilung des Volkseinkommens in Preussen." Both articles in the Zeitschrift des preussischen statistischen Bureaus for 1904.

[3] Weitere statistische Untersuchungen, Anhang.

	Ostpreussen.	*Rheinland*
	α	α
1892	1.840	1.393
1896	1.893	1.383
1902	1.842	1.359

The excellence of the fit of the curves for incomes above 3,000 marks is illustrated in the accompanying diagram, where the upper line refers to Rheinland and the lower to Ostpreussen. The equations to the lines were computed from the data of 1892 by the Method of Least Squares.



When it is remembered that every important phase of social life is correlated with the form of distribution of wealth, and when it is observed how rapidly the form of distribution is changing with the progress of states from agricultural to industrial stages, one readily admits the degree of importance which Professor Wagner attaches to such inquiries as I have illustrated. "Die Frage, wie sich die Zunahme des Volkseinkommens (und Vermögens) auf die nach der Einkommengrösse gebildeten Zensitengruppen —unsere ökonomischen Stände—verteilt, ist vielleicht der Kernpunkt der sozialen Frage im engeren Sinne des Wortes."[1]

Professor Pareto has himself given a number of illustrations of the use of his method. He has shown that, after the equation to the curve of distribution has been once calculated, it is quite an easy matter to find values

[1] Weitere statistische Untersuchungen, p. 262.

of the median and the percentiles.[1] He has also solved the following problem: Assuming that a proposed progressive tax should affect incomes only above a given rate and that it should never absorb more than a given percentage of an individual's income, what should be the progressive rates of taxation upon the several income-classes in order that the aggregate yield shall be equal to the yield of a given proportional tax?[2]

Pareto's law of income is a purely empirical law, for whose origin Professor Pareto has not offered an explanation. His procedure has been similar to the procedure in physical science in which such laws as those of Boyle, Gay-Lussac, and Avogadro were at first established as purely empirical results. But just as one of the most fertile and characteristic developments of physics since the early work of Clerk-Maxwell has been the rational deduction of these and similar empirical laws from a molecular theory, so likewise has a movement appeared in economics in which an attempt is made to derive from the principles of pure economics the laws established by empirical methods. I offer in illustration of this the French theory of crises.

In his classic work on commercial crises, M. Clément Juglar established the universality of crises, their periodic return and their general resemblance. Defining a crisis as a cessation in the rise of prices (l'arrêt de la hausse des prix) and liquidation as a cessation in the fall of prices (l'arrêt de la baisse des prix), he suggested that the variation of economic factors correlated with prices would afford proper indices of the approach of crises and of the resumption of business after the period of liquidation. He did not succeed in determining the general cause of

[1] "La legge della domanda." Giornale degli Economisti, January, 1895.

[2] La courbe de la répartition de la richesse. Lausanne, 1896. Imprimerie Ch. Viret-Genton.

crises. Indeed, he found considerable satisfaction in the exclusively empirical character of his work: "Sans faire intervenir aucune théorie, aucune hypothèse, l'observation seule des faits a suffi pour degager la loi des crises et de leur periodicité." [1]

The next phase of the theory was developed by M. Pierre Des Essars. Appropriating the suggestion of Juglar that an index of the movement of affairs could be found in the changing values of some factor correlated with general prices, M. Des Essars examined the rapidity of circulation of the deposits at the Bank of France.[2] As a measure of the rapidity of the circulation of deposits, he used the formula $v = \frac{m + m^1}{2s}$, where v = rapidity of circulation, s = the average deposits, m = the aggregate deposits, and m^1 = the aggregate drafts. By means of this formula the values of v for successive years were computed from the data of the Bank of France and the results were compared with M. Juglar's statistics of crises.

According to M. Juglar's account, the periods of crises and of liquidation had appeared in France as follows:—

YEARS OF CRISES AND OF LIQUIDATION IN FRANCE.

1810	crisis	1832	liquidation	1868	liquidation
1811	liquidation	1836	crisis	1873	crisis
1813	crisis	1839	crisis	1877	liquidation
1814	liquidation	1841	liquidation	1882	crisis
1818	crisis	1847	crisis	1886	liquidation
1820	liquidation	1849	liquidation	1891	crisis
1826	crisis	1857	crisis	1892	liquidation
1828	liquidation	1859	liquidation		
1830	crisis	1864	crisis		

[1] Des crises commerciales, edit. 1889, p. xv.

[2] "La vitesse de la circulation de la monnaie." Journal de la Société de Statistique de Paris, 1895, pp. 143–149.

In this period of 83 years, crises and periods of liquidation occurred 25 times, and, consequently, the investigation affords ample material for the testing of a theory of the correlation of these phenomena with any other economic factor. After plotting the rapidity of circulation of deposits for 83 years, M. Des Essars discovered that, when allowance is made for the uncertainty as to when a crisis or a period of liquidation actually begins and actually leaves off, then, without a single exception, the curve of circulation reached a maximum at the period of crisis, and reached a minimum at the period of liquidation. M. Des Essars regarded his investigation simply as supplying a barometer for this form of *météorologie sociale*. He made no attempt to isolate the cause of crises.

The third phase in the development of the theory has been sketched by Professor Pareto.[1] It has been generally held by those who have assisted in the construction of economic statics that problems of dynamic economics should be treated by introducing hypotheses as to change, and then making the necessary alteration in the statical theory. Professor Pareto's sketch of the theory of crises exemplifies this doctrine. Unlike M. Juglar and M. Des Essars, he at once makes a hypothesis as to the general cause of crises, and then attempts to show how his dynamic assumption would affect the simultaneous equations to which he had reduced economic statics. According to Professor Pareto, objective conditions determine the form of crises: their cause is the rhythmic change of demand, which is simply one form of a general law of rhythm characteristic of organic life. With this hypothesis as to the cause of the periodicity of crises, he illustrates by a particular case what alterations must be made in his statical theory in order to produce the cyclical movement of

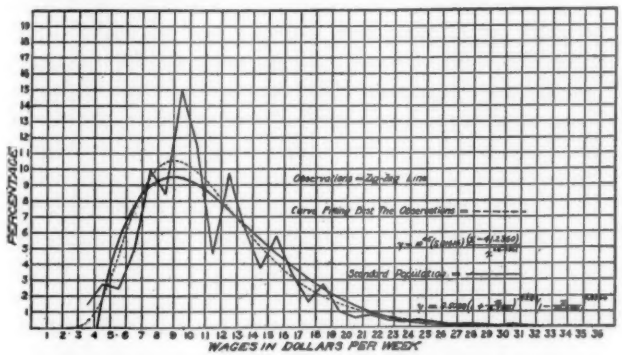
[1] Cours d'économie politique, vol. ii., chap. iv., particularly pp. 282–284.

prices. The step which remains to be taken is to connect Professor Pareto's velocity of the change of demand with M. Des Essars velocity of the circulation of money.

The development of the theory of crises illustrates the attempt to establish deductively results which have at first been reached empirically. The inverse process of establishing statistically results that have been reached in an *a priori* manner may also be illustrated. As an example, I give my own treatment of the efficiency theory of wages.[1]

According to the teachings of pure economics the distribution of wages, where competition is perfect, is determined by the relative efficiency of the laborers. The problem whose solution is attempted is to bring this doctrine to a statistical test.

When the relative frequencies of the rates of wages received by a large group of laborers in varied employments are plotted in the usual manner (illustrated by the accompanying diagram), the zigzag line which describes



[1] Economic Journal, December, 1907. Journal of the Royal Statistical Society, December, 1907.

the distribution ascends very rapidly until it reaches the maximum frequency and then tails off rather slowly, becoming almost parallel to the horizontal line. A smooth curve taking the general direction of the zigzag line may be derived from the statistical data by means of Professor Pearson's method of moments. The dotted curve on the diagram was computed from our census figures for 1900, which are represented by the zigzag line. It is now required to show that, when the efficiency theory of wages is given a numerical form, it will produce a curve approximating this smooth curve.

It is assumed that economic efficiency, like other physical, mental, and moral qualities, is distributed according to the law of error. When any quality is distributed among a group of individuals according to this normal law, it is possible to compute the average difference of the individuals in respect to the quality. Consequently, it is possible to compute the differential efficiency of members of a group. By making a further assumption that in a group of laborers the skilled, organized laborers enjoy a strategic advantage in bargaining which may be estimated in any particular case, a smooth curve may be drawn showing the theoretical distribution of wages. The theoretical curve appears upon the accompanying diagram. The degree of accordance of theory with actual conditions is indicated in the approach of the theoretical curve of distribution to the smooth curve of actual distribution.

To those who are interested in the development of economics as a science there are a few facts which seem to admit of only one interpretation:—

Nearly every one who has dealt with the science as a whole assumes that the statical aspect of our work is relatively complete, and that the investigation of dynamic problems should be entered upon. I have in mind par-

ticularly Professor Clark, Professor Marshall and Professor Pareto.

When we turn to the department of dynamic economics, we find that only two problems are receiving adequate treatment. These problems are the theory of population and the theory of crises. The manner in which the theory of crises is taking on a scientific form has already been described. That the theory of population has in recent years made tremendous strides toward perfection is common knowledge. The correlation with economic factors of changes in population due to changes in birth-rates, marriage-rates and death-rates, has been extensively investigated and exactly described. The change in the quality of the population, together with the causes of the change, is being properly investigated in the work of the school of eugenics. These two departments of dynamic economics, the theory of population and the theory of crises, which alone among dynamic problems are assuming an approximately satisfactory scientific form, and which should therefore serve as models for the development of other departments, owe their present scientific forwardness to the utilization of recent statistical methods in the treatment of questions which had remained in the realm of pure theory.

If it is allowable to base an inference upon the opinion of masters of the science and upon the record of accomplished results, it is not unreasonable to say that at the point which economics has now reached further fecund scientific ideas and abiding practical results are to be found in the development of the *Statistical Complement of Pure Economics.*

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RAILROADS IN THEIR CORPORATE RELATIONS.[1]

SUMMARY.

Causes of railroad amalgamation, 34.—Corporate control of railroads defined, 36.—Control through lease, 38.—Control through ownership of securities, 39.—Joint control, 41.—Virtual control, 44.—Inactive corporations, 45.—Minority holdings of railroad securities, 46.—Holding companies: trust companies, intermediate holding companies, land and improvement companies, 50.—Entanglements of the intercorporate relationship, 54.—Holding companies at the head of systems: Atlantic Coast Line Company, Reading Company, Rock Island Company, 58.—Purpose of the holding company and reasons for public opposition, 61.—Suggested remedies, 64.

For many years, concentration of railroad interests in the United States has been recognized as a "growing tendency." At the present time, so far has the movement proceeded, it may almost be regarded as an accomplished fact. An illustration may be taken from the monthly reports made to the Division of Statistics and Accounts of the Interstate Commerce Commission. Up to August 10 of this year 750 reports had been received of May revenues and expenses, covering 226,407 miles of line operated. Of this total, 197,600 miles, or 87 per cent., were comprised within forty railroad systems, including monthly reports from 322 separate railroad corporations.

The suggested causes for this amalgamation of railroad lines have been numerous and diverse. Desire for control pure and simple—the satisfaction which comes from the exercise of power—has played its part. The wish to

[1] The author of this article was connected during the year 1907-08 with the Division of Statistics and Accounts of the Interstate Commerce Commission, and was responsible for the compilation and for the technical portion of the text of Special Report No. 1 on Intercorporate Relationships of Railways in the United States as of June 30, 1906 (Government Printing Office, 1908). This article presents in an informal manner the results of that study, together with comments and expressions of opinion for which obviously the author is alone responsible.

provide opportunities for market manipulation and speculative gains has been an influential motive. The tendency of business in this country to be assembled in large units for the promotion of economies in administration and general efficiency has unquestionably contributed its influence to the movement. But, more than all these, the attempt to operate railroads in freedom from legislative and judicial interference, and at the same time to avoid the disastrous results of an unrestrained competition, has been charged or credited, according to one's point of view, with being the principal incentive to consolidation or concentration of railroad interests. For the railroads were compelled, with the dissolution of pools by the passage of the anti-pooling clause of the Interstate Commerce Act, and with the disbanding of the traffic associations by the judicial interpretation of the Sherman Anti-trust Act, to attain their desired end by more thoroughgoing methods.

The present discussion has not to do with tracing the life history of this concentration movement among railroads, nor with presenting a detailed picture of the present situation. Because of the multiplicity of detail, such a picture would be tedious and confusing, and, as a presentation of the actual situation, could not hope to be accurate for any length of time. This paper is concerned rather with such fundamental principles as seem to underlie the relationships of railroads, and will therefore resort to actual conditions merely for the purpose of illustration.[1]

[1] Poor's Manual of Railroads and Moody's Manual of Railroads and Corporation Securities give the details and the changes from year to year in the intercorporate relations of railroads. While they have no power to elicit information and rely in the main upon published reports, they are fairly accurate in their statements of facts. This paper, while drawn mainly from the Intercorporate Relationship investigation, as of June 30, 1906, brings its illustrations, unless otherwise noted, down to June 30, 1907. It is impossible to secure official information of a later date, as the annual reports of railroads for the year ending June 30, 1908, are not required to be submitted to the Interstate Commerce Commission until October 31.

Consideration will first be given to alliances which are sufficiently intimate to effect the control of one corporation by another. By control of a corporation is meant the power to dictate the policy of such corporation. This movement for control has assumed various phases. The simplest case is that in which a railroad desires to enlarge its territory and influence, where efficient railroading demands that joint arrangements with branch connecting lines be superseded by centralized management, or in which the constant pushing out of branches to gather in new sources of traffic is essential to the very life of the main stem of a railroad line. Then there is the extension of the main line into sections not before reached,—the transformation of a railroad serving a locality into a system that traverses a section and then half a continent,—illustrated in the policy of Eastern "trunk lines," which early realized the advantages of tapping the producing sections and by unified control and management reducing to the lowest point the cost of handling the enormous traffic in raw materials. The latest phases of this movement are seen in the newly constructed and projected lines to the Pacific and in the plans of certain interests for controlling transcontinental lines that touch both oceans.

Frequently the acquisition of control of an individual railroad is a part of some such far-sighted plan which does not appear on the surface, but is still only a dream or a desired culmination in the mind of a dominating financier, and which becomes clear to the public only after all the links have been connected and the system takes visible form. One has only to read the financial page of the daily newspaper and take note of the rumors of new corporate alignments to realize how alert is the public to scent incipient plans of this nature. Only on some such theory as this can many of the relationships of widely

separated railroad corporations be explained. Rivalry between different financial groups has accelerated the movement and has forced one group to meet the gigantic projects of another or suffer loss of business and of prestige.

As we have seen, the motives underlying the movement are not wholly economic, altho this motive is the dominant one. The prestige that springs from corporate power and financial control is a precious possession, to be guarded at all hazards and enhanced at every opportunity. This competitive struggle for financial power justifies itself only so long as it keeps its feet solidly on economic ground. If the development of systems works for efficiency in transportation, in the way of better service and lower rates, it can be defended; but experience proves that, in most cases, such rivalry has led to absorption of railroads merely because of their strategic advantage in a warfare of financial interests. It is but a short step from this practise to stock jobbing, manipulation, and often railroad wrecking, and, when the interests involved have had enormous resources at their command, the influence of such practises has not been confined to railroads, but can be traced into the management of banks, insurance companies, and other financial and fiduciary institutions. Such reprehensible practises have been particularly evident in the management of railroads in which boards of directors, elected for the purpose of directing a transportation agency, have delegated their functions to one dominating personality, and have then gone about their business.

Finally, as a cause of railroad control there may be mentioned the motive of pure investment. But this is very infrequently a dominating motive. Investments by railroads in the securities of other railroads are common, but, unless some other motive is present, they rarely extend to the point of actual control.

Control over a corporation may be established in a variety of ways; but the two principal methods of effecting the result are control through possession of securities, usually stock or its equivalent, and control through some form of contract, such as a lease. It is somewhat questionable whether a lease contract gives control at all, for on its face it usually transfers merely the use of physical property of a corporation for a limited term of years and leaves the corporate organization, with its board of directors and its stockholders, untrammelled. The corporation, at least formally, continues its existence, maintains its organization, and distributes as dividends on stock the rentals received from the lessee company. Breach of contract, a receivership, or the termination of the contract, may restore the property of the lessor company to its stockholders. This is the strict legal relation of the two corporations, and from this standpoint it would seem proper to disregard such relationships in any consideration of intercorporate control. Yet a careful study of lease contracts reveals the fact that the relationship of lessor and lessee extends all the way from an adherence to a strict legal interpretation of the independence of the two corporations to a virtual absorption of the lessor company in the lessee.

In the latter case, the lease usually runs in perpetuity or for a length of time practically equivalent. The stock of the lessor is practically all owned by the lessee, the lessee has often issued securities of its own to cover the absorbed property, and has pledged the stock of the lessor company for the new issue, or is carrying it on its books merely as a record of title. Frequently the only possession remaining to the lessor corporation is its franchise. The lessor company becomes, in other words, an inactive corporation, existing neither for the purpose of conducting a railroad business nor for the purpose of distributing

income to its stockholders. It is such cases which can properly be classified as forms of control, tho even here the lessor is still in law an independent corporation. A good illustration of a lease that is merely formal in character is found in the Dayton & Western Railroad Company, which in 1865 leased all of its property of every kind to the Little Miami and Columbus & Xenia Railroad companies for the term of ninety-nine years, renewable forever, subject to a mortgage securing the payment of $738,000 of bonds due in 1905. The lessee guaranteed payment of principal and interest on the bonds and all taxes and assessments, the rental payment being the interest on the bonds until maturity, and thereafter 5 per cent. per annum. But, after the payment of the bonds, the lessee might at any time demand a conveyance of the railroad in fee simple without further consideration. The Columbus & Xenia Railroad was subsequently leased to the Little Miami, and, by a later lease, the little Miami was conveyed to the Pittsburg, Cincinnati, Chicago & St. Louis Railway Company. The bonds of the Dayton & Western have now been paid, and the corporation exists merely for the purpose of formally conveying title when that act is demanded.

But the clearest form of control is that established through the possession of securities. Sometimes the possession of bonds is sufficient where bonds have the controlling voting power, or where, interest having been defaulted, the holders of bonds possess right of foreclosure. Occasionally a corporation holds a majority of voting trust certificates representing stock deposited with trustees. While not in direct control of the corporation whose certificates are held, the owning company, nevertheless, names the trustees, and comes into possession of the stock when the trust is dissolved. An illustration of this relationship is the ownership by the Seaboard Company of a majority

of the voting trust certificates of the Seaboard Air Line Railway.

But by far the greater number of railroad corporations are controlled through the ownership of stock, obtained sometimes by exchange of securities, either stock or bonds, for the stock acquired; sometimes by the sale of bonds on the market and the purchase of stock with the proceeds; and sometimes, altho not commonly when large purchases are involved, by direct appropriation of cash from the treasury. It is by the acquisition of voting securities that the large systems have in the main been built up. This does not, of course, mean that the head corporation, which gives its name to the system, necessarily itself owns the securities of all the corporations which it controls. In practically all the large systems the policy of indirect control is followed to a greater or less extent; that is, corporations subsidiary to the head of the system in their turn control other corporations, so that a hierarchy of corporate interests is created, often of a most intricate nature. It is this fact that made so difficult the work of compilation in the Interstate Commerce report already referred to, and it is the presentation of this relationship in tabular form that constitutes perhaps the most valuable feature of the report. To take a familiar instance, the New York Central & Hudson River Railroad Company controls the Lake Shore & Michigan Southern through ownership of a little over 90 per cent. of its stock. The latter in turn controls the Cleveland, Cincinnati, Chicago & St. Louis through ownership of 53 per cent. of its stock, and the New York, Chicago & St. Louis through ownership of a little over 50 per cent. of its stock. These roads in turn control others, so that the influence of New York Central management runs down the line until it reaches the most insignificant branches. Thus has this great system been built up until it aggre-

gates nearly 12,000 miles and represents a total outstanding capitalization, both stock and bonds, of over $1,300,000,000.

In many cases a railroad corporation, in addition to its control through title to a majority of the voting securities, is also the lessee of the controlled corporation. Usually the lease contract comes first in point of time, and then, later, stock is acquired sufficient to insure voting control, as the advantages of a closer intercorporate relationship become clear. But sometimes the lease contract is subsequent to the establishment of control through stock ownership. The execution of a lease under these circumstances, or the continuance of an early lease when stock control would seem to render such contract unnecessary, finds its explanation in the fact that a railroad corporation holding a bare majority of the stock of another railroad is enabled, through the exercise of its voting control, to arrange an advantageous contract with its subsidiary corporation which remains fixed during the life of the lease, and is thus able to free itself from the importunities of a possibly dissatisfied minority of the lessor corporation for a considerable length of time.

Thus far discussion has been confined to control exercized by a single corporation. But there are frequent cases of joint control, the participating corporations sometimes numbering as high as twelve. The fact of joint control is difficult to establish, because the line of distinction is not clear between the mere contemporaneous investment of several railroads in the same corporate stock and the acquirement of securities under an agreement for joint control. Joint control necessitates, of course, an agreement between the parties in interest, but these agreements are frequently so informal that they escape detection. Moreover, railroads have been very

reluctant to admit the existence of such agreements, possibly because they fear that the revelation of joint contracts of any character may render them liable to prosecution under the Anti-trust Act. In the Intercorporate Relationship investigation it was found necessary to adopt the wholly reasonable basis of interpretation that when railroad corporations invested simultaneously in the securities of a corporation in which they were all obviously interested, such as a terminal or switching company, and particularly when the amount of the investment was practically identical for each of the investing corporations, the corporation whose securities were acquired was to be regarded as jointly controlled.

Joint control may be created by lease, as in the case of the joint lease of the Georgia Railroad by the Atlantic Coast Line and the Louisville & Nashville, but usually such control is based upon stock ownership. An illustration of this is the control of the Chicago, Indianapolis & Louisville by the Southern and the Louisville & Nashville through joint ownership of 88 per cent. of the stock. Two interesting cases in which the Harriman interests were involved are those of the North-western Pacific and the Chicago & Alton. The first-named corporation was organized to consolidate all the competing lines of the Santa Fé and the Southern Pacific systems north of San Francisco Bay, and the board of directors is divided between these two controlling systems. In the case of the Alton, the Union Pacific and the Rock Island deposited a controlling interest with the Central Trust Company of New York, under an agreement by which the control of the board of directors was to be transferred in successive years from one to the other.[1]

Agreements for joint control do not always include all

[1] This agreement has been annulled, and control of the Alton passed in August, 1907, to the Toledo, St. Louis & Western Railroad Company.

of the large corporate stockholders. Note, for example, the case of the Southwestern Construction Company, the holding company for the stock of the Cincinnati, New Orleans & Texas Pacific Railway. About 80 per cent. of the stock of the former corporation is controlled by the Southern Railway and the Cincinnati, Hamilton & Dayton through direct ownership and through the holdings of their subsidiary corporations. Nearly $450,000 of stock, or over 20 per cent., is owned by the Alabama, New Orleans, Texas & Pacific Junction Railways Company, Limited. Yet this latter corporation has no voice in the management of the Southwestern Construction Company. The Southern Railway elects four directors, the Cincinnati, Hamilton & Dayton four, and these eight choose the ninth and remaining member.

In agreements for joint control a corporation's influence in the affairs of the controlled company is not always proportionate to its investment. For example, the stock of the Des Moines Union Railway Company is owned five-eighths by F. M. Hubbell Son & Co., two-eighths by the Chicago, Milwaukee & St. Paul Railway Company, and one-eighth by the Wabash Railroad Company. Yet a director cannot be elected, the articles of incorporation amended, or the capital stock increased except by a vote of more than seven-eighths of the stock, which means unanimous consent.

In rare cases joint control is shared by a corporation and an individual, as, for example, in the case of the San Pedro, Los Angeles & Salt Lake Railroad Company. This line, as projected, threatened the traffic of the Southern Pacific. By legal proceedings Mr. Harriman prevented the construction of portions of this road until an agreement had been effected between himself and the builder, Mr. W. A. Clark, as a result of which the stock of the railroad was deposited with the Farmers' Loan and

Trust Company as trustee and was to be owned half and half by the Oregon Short Line and Mr. Clark and his associates.[1]

Most of the cases where control is shared by two or more railroad corporations have an obvious explanation and are justified on economic grounds. They arise where terminal tracks, a union station, or a short connecting line, is necessary to the operation of a number of railroad systems. Frequently the expense of construction and operation of such joint property represents the only investment that the railroads make, and stock, if issued at all, is distributed to each contributor merely as a matter of form. But instances such as the San Pedro case are less defensible, and contain within themselves more than a possibility of effecting that "restraint of trade" which the courts have so frequently denounced.

Virtual control of a railroad corporation may be maintained even when less than a majority of stock is owned. Thus in some cases the stock necessary to convert a minority into a majority holding is in the possession of individuals or groups of individuals whose interests are identical with those of the holding corporation. Well-known instances of this kind include the control by the Chicago & Northwestern Railway of the Chicago, St. Paul, Minneapolis & Omaha, in which a holding of $1,500,000 of stock by F. W. Vanderbilt is necessary to make a majority. The ownership of 45½ per cent. of the stock of the Southern Pacific Company by the Oregon Short Line Railroad Company—a part of the Union Pacific system—doubtless belongs in the same category, altho the individual financial interests which fill the gap are not revealed. A concentrated minority holding is doubtless in many cases fully as effective as an actual majority would be, because of

[1] The agreement also contains provisions relative to division of traffic and territory with which this discussion is not concerned.

the scattered distribution of the majority ownership in small lots. Yet the occasional market raids during the last decade on the stock of prominent railroad corporations have led financial interests to question the security of a minority holding, however large and concentrated, and to endeavor to ally with the corporate holding a sufficient amount of personal holdings to insure an actual voting majority. The revised annual report form of the Interstate Commerce Commission, upon which railroads are making their returns for the year ending June 30, 1908, calls for the ten largest stockholders of each corporation. This information gathered currently will enable the public to keep accurately in touch with the investments of large financial groups, and will make possible in the future a clearer understanding of these alliances of individual and corporate interests. This method of corporate control through the aid of individuals undoubtedly adds an element of difficulty to any attempt at regulation or judicial interference.[1]

This treatment of intercorporate control has had to do with the securities of *active* railroad corporations; that is, with the securities of those corporations which either operate railroad property or, as owners of railroad property operated by other corporations, maintain an organization for the distribution of income to stockholders. But there is a very large number of railroad corporations, whose securities are found on the books of the controlling corporation, that perform neither function and that still exist in contemplation of law. In some cases such corporations still retain title to their property; in other

[1] Were this article not confined to railroad corporations, it would be interesting to discuss the significance of the control by railroads of steamship lines, such, for example, as the control of the Pacific Mail Steamship Company by the Southern Pacific and of the Old Dominion Steamship Company by the Chesapeake & Ohio, Southern Seaboard Air Line, Norfolk & Western, and Atlantic Coast Line.

cases they have transferred title to the controlling corporation, and retain merely their corporate right to be.[1] The property represented by such *inactive* corporations has in almost every case been absorbed into the operating system of the controlling corporation, and it would naturally be expected that the corporate existence of such inactives should be discontinued. To some extent this has taken place, and corporations have unified and simplified their organization by ending the life of their "inactives." Nevertheless, these moribund companies still exist in great numbers, doubtless because their charters give them certain privileges which counsel for the controlling roads regard as valuable possessions against a future emergency. The total outstanding securities of these inactive corporations on June 30, 1906, amounted to $412,000,000 of funded debt and $771,000,000 of stock. Of the funded debt $120,000,000 was in the hands of the public. Some of it was doubtless of no value, but most of it had been assumed as a direct obligation of the absorbing road. Only $5,500,000 of the total amount of stock was still outstanding, and this doubtless has no value at all and could be located with difficulty. The absorption of such inactive corporations has been complete.

Thus far the discussion has been concerned with the question of intercorporate control. But there exists to an enormous extent corporate ownership of railroad securities, which, altho falling short of control, secures for the holding corporation a potent influence in the affairs of the railroad whose securities are owned. It would be tedious merely to enumerate here the list of important alliances of this character. Furthermore, official information is available only as late as the year ending June 30,

[1] In still other cases corporate existence has ceased, but the stock of the dead company is carried on the books of the successor as a matter of record.

1907, and a statement of these facts would not picture the present situation with entire accuracy. The motives of financial interests change as conditions change; legislation makes certain holdings undesirable, as illustrated, for example, in the sale of stock of "coal roads" since the passage of the Hepburn Act with its "commodity clause"; financial difficulties sometimes compel a railroad to convert its influence in other roads into cash, as in the recent reported sale by the Erie of its Lehigh Valley stock. Old alliances are dissolved and new ones formed with bewildering frequency. As illustrations of these minority holdings acquired for the purpose of influencing, if not controlling, the policy of other roads, may be mentioned the holdings of the Pennsylvania Railroad system in the Baltimore & Ohio, the Norfolk & Western, and the New York, New Haven & Hartford; the holdings of the New York Central system in the Chesapeake & Ohio and the New York, New Haven & Hartford; the holdings of the Baltimore & Ohio, the Chesapeake & Ohio, the Erie, the Lake Shore, and the "Panhandle" in the Hocking Valley; the holdings of the Lackawanna, the Erie, the Lake Shore, the Reading, and the Central of New Jersey in the Lehigh Valley; of the Chicago & Northwestern in the Union Pacific; and of the Missouri Pacific in the Denver & Rio Grande, the Texas & Pacific, and the Wabash. A most interesting instance which approaches a condition of joint control is the influence of the Pennsylvania and the New York Central systems in the Reading Company through the holding by the Baltimore & Ohio and the Lake Shore of over $30,000,000 each in Reading stock, an aggregate of over 43 per cent.

During the interval between the annual reports to the Interstate Commerce Commission for 1906 and 1907 the Pennsylvania system disposed of all its Chesapeake & Ohio stock, amounting to over $15,000,000, and the New

York Central system sold $4,500,000 of its holdings in the same road. Who the purchasers were does not appear. A more interesting case is the reduction in the Pennsylvania holdings of Baltimore & Ohio stock from $73,000,000 to $42,500,000. At the same time there appears among the new holdings of the Oregon Short Line for the year 1907 about $40,000,000 of Baltimore & Ohio stock, and among the new holdings of the Pennsylvania Company $34,000,000 of Oregon Short Line bonds. An inference that would be fairly accurate might be drawn concerning this particular ramification of Harriman finance.

As a rule, these minority holdings are in the securities of railroads that have traffic relations with the holding corporation, and that lie in the same general traffic territory,—where, in other words, influence in management will promote harmony of operation, if not community of interest. But occasionally, as already noted, a railroad corporation purchases widely in the securities of other railroads, possibly to some extent for pure investment purposes, but more probably with far-reaching plans for future coalitions. The most striking instance of this character is seen in the case of the Oregon Short Line Railroad Company, which is the principal "holding company" for Mr. Harriman's system of railroad lines, and which he has made the depository for a large proportion of his purchases during the conduct of his pyrotechnic finance. The important holdings of the Oregon Short Line in the securities of other railroad corporations on June 30, 1907, were as follows:—

Atchison, Topeka & Santa Fé, preferred	$10,000,000
Baltimore & Ohio, common	32,334,200
Baltimore & Ohio, preferred	7,206,000
Chicago, Milwaukee & St. Paul, common	3,690,000
Chicago, Milwaukee & St. Paul, common, 25 per cent. paid,	922,500
Chicago, Milwaukee & St. Paul, preferred, 25 per cent. paid,	1,845,000
Chicago & Northwestern, common	3,215,000

Great Northern, preferred	$9,036,400
Great Northern, preferred, 50 per cent. paid	3,614,560
New York Central & Hudson River	14,285,700
Northern Pacific, common	4,152,800
Northern Pacific, common, 12½ per cent. paid	2,491,600
Northern Securities, stubs	724,900
San Pedro, Los Angeles & Salt Lake	12,500,000
San Pedro, Los Angeles & Salt Lake, first mortgage bonds,	20,000,000
Southern Pacific, common	90,000,000
Southern Pacific, preferred	18,000,000
Southern Pacific, preferred, 25 per cent. paid	16,200,000

In addition, it may be noted that the Union Pacific Railroad Company owns $10,343,100 of the stock of the Chicago & Alton, also $18,623,100 of Illinois Central stock directly, and $8,000,000 through control of the Railroad Securities Company.

That this policy of Mr. Harriman's has been deliberately entered upon is shown by his testimony in a hearing before the Commission, in which he said, "If I thought we could realize something more than we have got from these investments, I would go on and buy some more things. . . . If you will let us, I will go and take the Santa Fé tomorrow."[1] That he is still pursuing the same policy is shown in his recent purchase of the stock of the Central of Georgia which connects with the Illinois Central at Birmingham, Alabama, and in the financial aid which he is reported to have given this year to both the Erie and the Wheeling & Lake Erie Railroads, which have presumably given him an influence in their councils.

That the intercorporate holdings of railroad securities reach an enormous aggregate is shown by the Interstate Commerce Commission's investigation which presents the situation on June 30, 1906. This investigation shows that of the total outstanding stock of railroad corporations

[1] In the Matter of Consolidations and Combinations of Carriers, Relations between such Carriers, and Community of Interests therein, their Rates, Facilities, and Practises. Interstate Commerce Commission, 1907.

on that date, amounting to nearly $9,000,000,000, over $4,000,000,000, or 46 per cent., was held by railroad corporations; and that, out of $9,000,000,000 of funded debt, $1,440,000,000, or a little over 15 per cent., was held by railroads.

This striking contrast between the percentage of funded debt and of stock held by railroads leads to the inevitable conclusion that railroads in their purchase of railroad securities are not primarily seeking investments, but that the main consideration is the strategic advantage to be derived from the possession of voting stock. The enormous intercorporate holdings of railroad securities also warn the student of railroad finance that a considerable duplication of securities must be eliminated before the net amount in the hands of the public upon which railroads are entitled to earn can be determined. This net amount as shown in the 1906 investigation was $7,840,000,000 of funded debt and $4,740,000,000 of stock, or $36,173 per mile of funded debt and $21,877 of stock. It is probable that this net amount will be further reduced by a later and still more exhaustive investigation.

We turn finally to a consideration of the most interesting phase of the intercorporate relationship problem,—the position and character of the "holding company." This "holding" function is not confined to corporations expressly organized for the purpose. Almost every large operating railroad company acts to some extent at some time as a "holding company" for financial interests that direct the system to which it belongs. Occasionally this is true to a very considerable degree, as in the case of the Oregon Short Line already described. Trust companies also have in recent years often acted in this capacity. For example, the stock of a large number of railroad corporations comprising the Reading system was in 1906 held

by the Central Trust Company of New York as trustee for the Reading Company. Sometimes this holding function is performed by an individual who, in his capacity as president or other officer of a railroad company, holds for that company the stock of another railroad corporation. Whatever the motive may be for this general policy, it increases the government's difficulty in securing full information as to intercorporate alliances. The corporation whose stock is held may reasonably insist that its information concerning its stockholders does not extend beyond its stock books, and moreover it is at least questionable whether the Commission has jurisdiction over trust companies or over individual trustees who appear to be holding stock in their individual capacity. The advantage of such a policy to a railroad that desires to conceal its control of another railroad is obvious. Such concealment may be promoted, however, with a view to deceiving business rivals and competitive financial interests rather than government authority. Hostility to government interference in matters of this kind is based much less on a fear of prosecution for violations of law than on the possible effect of publicity upon the strategic position of the corporation among its rivals.

But beyond this comparatively simple method of holding corporate securities there is the "holding company" chartered expressly for the purpose of performing this function and given by the law of the State, usually New Jersey, the power to purchase, hold, and sell securities and to issue its own obligations in return therefor. Such corporations have assumed many different forms and have been assigned the performance of varied services, but in principle they do not differ. Their variations depend upon their differences in location in the railroad system of which they are a part and the diversity in the character of the securities held by them.

Thus there are the holding companies that are at the head of railroad systems and that bind together the different operating railroad lines under the control of a single financial interest.[1] Then there are the intermediate holding companies that hold securities in the interest of the railroad corporation or corporations by which they are controlled. These companies in turn may be either purely railroad holding companies organized specifically for the purpose of holding the stock of one or more railroad corporations, or they may be the safety deposit for a mass of miscellaneous securities that the railroad does not desire to carry on its own books.

A few examples will make the point of this discussion clear. The Michigan Securities Company with a capital stock of only $20,000, all of which is owned by the Cincinnati, Hamilton & Dayton, is the agency through which the latter corporation held on June 30, 1907, among other securities, $11,000,000 of the capital stock of the Pere Marquette and $750,000 of the stock of the Southwestern Construction Company. The Illinois Central has within its system two holding companies of this character, of which it owns the entire capital stock. One, the Mississippi Valley Company, has a capital stock of $300,000 and controls four railroad corporations, including the Yazoo & Mississippi Valley with over 1,200 miles of line, and a capitalization of $6,000,000 of stock and $53,000,000 of funded debt. The other, the Mississippi Valley Corporation, has a capital stock of $5,000 and a funded debt of nearly $8,000,000, and controls solely and jointly ten terminal, bridge, depot, elevator, and small railroad companies, with an aggregate capitalization of $17,000,000, besides owning securities in a number of other companies. The Union Pacific owns 95 per cent. of the stock of the

[1] Such holding companies should not be confused with corporations like the Southern Pacific Company and the Pennsylvania Company, which own no mileage, but which operate railroad systems.

Railroad Securities Company. The latter has purchased $8,000,000 of Illinois Central stock, and has pledged this as collateral for the issue of an equivalent amount of bonds. Its authorized issue of bonds is $20,000,000, but the unissued $12,000,000 can only be put out against the deposit of an equal amount of Illinois Central stock in addition to that already in the hands of the trustee. The Southwestern Construction Company, which owns 68 per cent. of the capital stock of the Cincinnati, New Orleans & Texas Pacific, is similar in character to those already described, except that it is controlled jointly by two railroad corporations, the Southern and the Cincinnati, Hamilton & Dayton.

The Pennsylvania Company, altho not identical in character with the corporations already mentioned, may roughly be classified with this group. Its capital stock of $60,000,000 is all owned by the Pennsylvania Railroad Company. On June 30, 1907, it owned no mileage, but operated 1,413 miles of road west of Pittsburg. It owned over $138,000,000 of railroad stock and $95,000,000 of bonds. A large proportion of its holdings were pledged for the issue of collateral trust bonds, which form a large majority of its funded debt. That it has been used by the Pennsylvania Railroad Company as a holding company has been shown earlier in discussing the sale of Baltimore & Ohio stock. That it is also used as a medium for the issue of new obligations may be learned from the statement of officers of the Pennsylvania Railroad Company, who in reply to inquiries have said:—

> In regard to the issues of the Pennsylvania Company obligations, the Pennsylvania Company is simply a bureau of the Pennsylvania Railroad Company, which owns every share of its capital stock; and for the same reason that the Pennsylvania Railroad Company takes charge of the issue of the car trust certificates to cover additional equipment furnished to all its lines both East and West of

Pittsburg, it feels itself entirely at liberty when short term securities have to be issued to use the Pennsylvania Company for that purpose, or to use the Pennsylvania Railroad Company as it may prefer. . . .

. . . One of the objects in view when the Pennsylvania Company was organized was to enable it to do just the things for which the Pennsylvania Railroad Company is now using it; and in granting its charter the State gave it certain exceptional privileges which are not possessed by the Pennsylvania Railroad Company under its charter. It is, therefore, of special value to the Pennsylvania Railroad Company for this reason, and, as the reports of the two companies state these transactions very clearly, it is not thought that any obscurity or misapprehension can exist in reference thereto.[1]

Similar in character and purpose to the instances already noted are many of the so-called development, improvement, investment, and land companies. Nearly every railroad corporation of any size has organized and owns the stock of companies whose purpose is to purchase and sell real estate and other miscellaneous properties. It was formerly the practise for this function to be performed by an individual, but the complications and delays that arose in the transfer of title upon the death of any such trustee led to the substitution of corporations. In a considerable number of cases these companies have also been used as holding companies for securities of subsidiary railroads. For example, the Erie Land and Improvement Company, the entire capital stock of which is owned by the Erie Railroad, owns the entire capital stock of the Southern Tier Development Company, which in turn owns stock in one steam railroad, two electric railways, and a lake line. The Santa Fé Land Improvement Company, whose stock is all in the possession of the Atchison, Topeka & Santa Fé Railway Company, owns $309,900 of the capital stock of the California-Nevada

[1] Snyder, American Railways as Investments, p. 554.

Railroad Company. But the most important illustration of this form of holding company is the Northwestern Improvement Company, owned entire by the Northern Pacific Railway. This company owns securities of steam railroads, terminal, navigation, irrigation, express, land, and mining companies amounting to over $27,500,000.

A most interesting example of the extent to which this holding company principle may be carried is that of the Lake Superior Company, Limited, an agency of the Great Northern Railway Company. No official information is available, but it appears from the discussion in financial journals that this company is a limited copartnership, organized in 1899 under the laws of Michigan with a nominal capital of $100,000. It has three stockholders, James J. Hill, Louis W. Hill, and Robert I. Farrington, all officers of the Great Northern Railway Company. By a deed of trust, the Great Northern transferred to the Lake Superior Company, Limited, securities to a total par value of over $8,000,000, including stocks and bonds of railroad, terminal, express, elevator, land, water-power, bridge, and mining companies. This partnership has since been used as a means of acquiring real estate, lumber, and ore lands, the earnings of its investments being largely reinvested instead of being distributed as dividends.[1] Of all these interesting transactions not a trace appears in the annual report of the Great Northern Railway Company to the Interstate Commerce Commission, nor even in its report to its own stockholders, except for the announcement in the report for 1900 of the organization of the company.

As a rule, the relation between the holding company and the railroad is a simple one and can readily be traced and understood, but occasionally the entanglements

[1] The ore lands acquired have since been transferred to trustees to be held and managed by them for the benefit of the holders of Great Northern ore certificates.

of the intercorporate relationship are so extensive that legal counsel and the courts have had difficulty in following their ramifications. Nothing short of a drastic reorganization would in many cases be sufficient to disentangle the maze and reduce the relationship to one of simplicity.

The Intercorporate Relationship Report of the Interstate Commerce Commission contains a diagram of the relations of railroads comprising the Queen & Crescent route, which well illustrates the point. The Southwestern Construction Company, itself a holding company for the Cincinnati, New Orleans & Texas Pacific, is owned by the Southern, by the Cincinnati, Hamilton & Dayton through the Michigan Securities Company, a holding company, and by the Alabama, New Orleans, Texas & Pacific Junction Railways Company, Limited, another holding company, the latter being largely controlled by railroads subsidiary to those already mentioned, through the possession of a one-fourth undivided interest in its stock.

Another instance is that of the New York, New Haven & Hartford, which was merged in 1907 with the Consolidated Railway Company. The Consolidated Railway Company represented in the first place the consolidation of a large number of electric railway companies within the State of Connecticut. In addition, it had vested in it the control of the New England Investment and Security Company, a voluntary association organized to hold the stocks of the various traction properties owned by the New Haven within the State of Massachusetts.[1] Again, the Consolidated Railway Company acquired control of the Rhode Island Securities Company, which was the sole owner of the stock of the Rhode Island Company, the

[1] This device was in May, 1908, declared unlawful by the Supreme Court of Massachusetts.

latter controlling through lease electric railway, electric light, and gas companies in Providence and vicinity. Finally, the Providence Securities Company was organized for the purpose of financing the acquisition of the securities of the Rhode Island Securities Company, and the stock of the Providence Company is all owned by the New Haven. Even without these holding companies heaped one upon another, the New Haven system would have been sufficiently complicated, for it is made up of merged lines whose obligations have been assumed; of roads controlled through stock ownership, some operated independently, some by New Haven management; of leased roads; and of roads whose lease contract has been assumed in connection with the lease or control of its lessee. But the extensive venture of this corporation into electric railway ownership and operation has been accompanied by a further tangle of intercorporate alliances that is difficult to justify. In many cases such a confused situation as this has doubtless grown up gradually, and the difficulties, legal and otherwise, of getting rid of it are greater than those of maintaining the existing status. But, notwithstanding all this, it must be evident to any one who gives the matter close study that complications such as these are frequently looked upon with favor because they give opportunity for inflated stock issues and market manipulation, for an intermingling of interests that will confuse the public and hamper regulating bodies, both State and federal, and for a situation that will furnish a means of escape to important transportation agencies from the jurisdiction of State and interstate commissions.

The holding company frequently performs an economic service when it brings small scattered corporations together as a preliminary step to consolidation, or when it is used as a convenient device for joint control by two

or more railroad corporations of some railroad property in which they have a legitimate joint interest, provided of course that the financial transactions of such a holding company are made as public as those of the railroad corporations that own it. But, when it is a scheme deliberately invented for the purpose of avoiding publicity and inspection and as a means of carrying on business not permitted by its charter, its continuance becomes a public menace. In such cases the books of the holding company are frequently kept by separate officers independent of the railroad accounting officials, and the railroad is able to report that it is not officially informed of the financial transactions of the holding company whose stock it owns. Thus the Great Northern Railway Company reports to the Interstate Commerce Commission that its interest in the Duluth, Superior & Western Terminal Company is merely that of a lessee of a portion of its property, altho it appears that the Lake Superior Company, Limited, owns $1,999,500 of its stock out of a total outstanding of $2,000,000. Thus is the Yazoo & Mississippi Valley able to state under oath to the Commission that it is not controlled by any other railroad company, altho it is controlled by the Mississippi Valley Company, whose entire capital stock is owned by the Illinois Central.

But the holding companies that are of the greatest interest to the public are those at the head of great railroad systems. Three illustrations will suffice to describe this class, the Atlantic Coast Line Company, the Reading Company, and the Rock Island Company. The unique feature of the Atlantic Coast Line Company is its small capitalization in comparison with the securities it holds. This company was organized in 1889 to bring under unified control the group of railways later consolidated into the Atlantic Coast Line Railroad Company. It had

a capital stock of $10,000,000, which in 1897 was reduced to $5,000,000 by the issue of certificates of indebtedness in place of the stock retired. The next year the stock was restored to its original amount of $10,000,000 by a stock dividend of 100 per cent., representing accumulated surplus. On June 30, 1907, this company had outstanding $12,600,000 of stock and $13,000,000 of certificates of indebtedness. It owned $25,266,300 out of $50,134,200, or a little over 50 per cent. of the stock of the Atlantic Coast Line Railroad Company and $11,500,000 of its funded debt, the latter being pledged for a portion of its own certificates of indebtedness. When it is recalled that the Atlantic Coast Line Railroad Company in turn holds 51 per cent. of the stock of the Louisville & Nashville Railroad Company, and that this latter corporation owns jointly with the Southern Railway 88 per cent. of the stock of the Chicago, Indianapolis & Louisville, and is a joint lessee with the Atlantic Coast Line Railroad Company of the Georgia Railroad, it will be seen that less than $6,500,000 of Atlantic Coast Line Company stock, constituting a majority, controls solely and jointly a railroad system 11,000 miles in extent with a total capitalization of over $725,000,000. No similar instance can be discovered of such wide-reaching control on the basis of so small a capital.

The peculiarity of the Reading Company is that it unites under one management railroad and mining properties. This company has a capital stock of $140,000,000 and funded debt of nearly $105,000,000. It owns all the stock and a portion of the funded debt of the Philadelphia & Reading Railway Company, all the stock of the Philadelphia & Reading Coal and Iron Company, and 53 per cent. of the stock of the Central Railroad of New Jersey. In addition it owns about $20,000,000 of bonds and $35,000,000 of stock in sundry other companies,

including steam and electric railways, dock, terminal, navigation, ferry, bridge, mining, telegraph, real estate, and hotel companies, and stock exchanges. In this list is included the stock of nearly all the roads comprising the Philadelphia & Reading Railway system, these roads being operated by the latter under lease. Even the railroad and marine equipment used in operation is leased from the Reading Company.

The Rock Island was chartered in 1902, with the State of New Jersey as its gracious god-father. It has $139,000,000 of capital stock and no debt. This company owns the entire stock issue of the Chicago, Rock Island & Pacific Railroad Company, which was chartered in Iowa as an operating railroad, but which neither owns nor operates mileage and is simply a holding device for the convenient use of Rock Island financiers. This latter corporation in turn owns 93 per cent. of the stock of the Chicago, Rock Island & Pacific Railway Company—the principal operating company of the Rock Island system—and 58 per cent. of the stock of the St. Louis & San Francisco Railroad Company. The Chicago, Rock Island & Pacific Railway owns half the stock of the Alton, and the St. Louis & San Francisco controls the Chicago & Eastern Illinois, which in turn controls the Evansville & Terre Haute. Two more facts are necessary to make clear the underlying purpose of this gigantic structure. First, holders of the preferred stock of the Rock Island Company have the right, to the exclusion of holders of the common stock, to elect a majority of the board of directors, such right to be surrendered only with the consent of two-thirds of the preferred stockholders. And, second, the amount of the preferred stock cannot be increased except upon the affirmative vote of two-thirds of the entire preferred and two-thirds of the entire common stock. In other words, holders of a majority of the preferred stock,

or one share over $27,000,000, have permanently intrenched themselves in control of a railroad system of 15,000 miles with total outstanding capitalization, stock and funded debt, of $1,500,000,000, and they have issued $380,000,000 of holding company securities in the prosecution of their plans.[1]

That such an inflation of securities as is found in the case of the Rock Island and other holding companies is a public danger cannot be questioned, but that it results in a demand for higher rates in order to pay dividends on such securities is a charge that can hardly be sustained. The pure holding companies derive their income solely from the securities they hold, and demand no direct contribution from the public. Furthermore, so far as the actual amount of railroad securities outstanding in the hands of the public is concerned, the total is not as a rule greatly increased by the presence of the holding company, for the par value of holding company capitalization is in most cases less than the par value of the securities which it holds and upon which its own capital is supported.[2] To be sure, in the Rock Island Company case the total amount of securities in the hands of the public has been increased beyond the amount that would have been in existence, had the railroad corporations been left undisturbed. But this is an exceptional instance, and there are here two holding companies in action instead of one. Justification for public alarm over inflated capitalization, so far as such increase in securities affects rates, should arise not from the attitude of the holding company,

[1] A striking example of holding company finance in the municipal field is that of the Interborough Metropolitan Company, which, through ownership of the Interborough Rapid Transit Company, the Metropolitan Securities Company, and the Metropolitan Street Railway Company, is in control of the entire local transportation situation in New York City.

[2] This discussion is limited to railroad-holding companies. The statements made concerning the apparent lack of inflation of securities would be modified considerably, were holding companies in general under consideration.

but rather from that of the operating railroad corporation, which is itself the holder of the securities of another railroad. Such a company frequently contends for rates adequate to pay a "reasonable return" upon its entire capitalization when a portion of that capital was issued to cover the acquisition of securities of other roads. From the public can fairly come only the earnings necessary to support capital that covers the actual property of the corporation employed in transportation; support for the remainder of its capital must obviously come from the securities it owns. It was with the purpose of determining the amount of capital that represents operating railway property and of eliminating such duplication of securities that the Commission's Intercorporate Relationship investigation was undertaken. It was found that out of a total gross outstanding capitalization, funded debt and stock, of over $18,000,000,000, railroad corporations held $5,500,000,000, leaving $12,500,000,000 in the hands of the public. This figure, altho subject to correction in later investigations, is the one that should be accepted as measuring approximately the actual value of railroad property.

That the holding company does influence rates to some extent is true, but in a more indirect manner. So far at least as the large holding company at the head of a system is concerned, its profitable life depends upon the income that it derives from the securities in its treasury. It is, therefore, of vital consequence to the financial interests in command that the railroads controlled shall declare a continuous dividend. This may necessitate the maintenance or even an increase of rates that seems unwarranted from the shipper's standpoint. However, the insistence upon dividend payments is more likely to affect the road's physical condition by preventing adequate charges to maintenance and depreciation, and in this

respect it menaces the investor quite as much as it does the shipping public.

Public opposition to the holding company has two explanations. In the first place, the device makes possible the concentration of interests of large public importance in a few hands. This seems to be the principal reason for its creation, at least so far as the holding company at the head of a system is concerned. It has the same advantage that a voting trust agreement possesses—but in permanent form—of perpetuating the control of a financial group whose holdings might otherwise become scattered. It is evident that, if the majority of the stock of a railroad company is owned by a holding company which votes it in a block, then a majority of the holding company's stock, which on a basis of par for par is only 26 per cent. of the railroad's capital, is sufficient to control the situation. The Rock Island Company is a striking case in point. The ill-fated Northern Securities Company was not different in principle, but it had the misfortune to hold the securities of parallel and competing roads. If the financial group in control has primarily at heart the transportation interests of its properties, such an organization need not injure the public. But the danger to both public and investor in railroad securities lies in the fact that such groups of financiers are too frequently interested in speculative finance rather than in railroading. There are present in such a situation conditions that amply justify public alarm.

The second cause for opposition to the holding company lies in the fact that it is not apparently subject to the regulation of the Interstate Commerce Commission. At least, it has not recognized such jurisdiction, and the question has not as yet been submitted to judicial determination. This makes it possible for a railroad corporation or a group of financial interests to refuse all informa-

tion concerning the holding company which it controls, and under cover of such immunity from public inspection to carry out policies that might otherwise be difficult or impossible. A railroad may, through the medium of a holding company, conceal its control of another railroad corporation. It may by the same means engage indirectly in businesses, such as mining, that are forbidden by its own charter. It may evade specific provisions of statutes or administrative orders of a regulating body. For example, the Reading Company, which owns both the Philadelphia & Reading Coal and Iron Company and the Philadelphia & Reading Railway, denies the jurisdiction of the Interstate Commerce Commission, and does not consider itself subject to the provision of the Hepburn Act which forbids railroads to transport, except for their own use, products which they own or which they have manufactured, mined, or produced.[1] Again, an accounting order of the Commission requires railroads to charge against operating expenses an amount adequate to cover depreciation of equipment. If the holding company owns the equipment and leases it to the railroad with no provision in the lease that such equipment shall be kept unimpaired, and, if the holding company is not subject to the jurisdiction of the Commission, the administrative order is nullified.

In these campaign days, when specifics are daily offered for all forms of economic disease, it is a wise conservatism that refrains from the proposal of too sure a remedy. But this study of the relations of railroad corporations to one another would suggest three lines of approach toward the removal of such evils as the situation has brought upon us, and they will be stated without discussion in this conclud-

[1] The "commodity clause" has been declared unconstitutional by the United States Circuit Court of Appeals, but has not yet been passed upon by the Supreme Court.

ing paragraph. They carry with them legal and possibly constitutional difficulties, the discussion of which, however, is outside the purpose of this paper. One is a law which would bring this increasingly popular device—the holding company—clearly and unequivocally under government jurisdiction, and compel from it that same publicity of accounting to which the railroad corporations are subject. The second would require government approval for all new issues of capital, and would define broadly what constitutes a legitimate basis for capitalization. The third would confine railroad corporations strictly to the business of transportation. A step will have been taken in this direction if the commodity clause of the Hepburn Act is finally sustained by the courts. The next step will be the prohibition of the exercise by railroads of the holding company function, and a confining of their ownership of securities of other railroad corporations to such as is necessary in the conduct of a legitimate transportation business.

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A STATISTICAL SURVEY OF ITALIAN EMIGRATION.[1]

SUMMARY.

I. The General Movement. The official figures of 1869–75, 67.—Magnitude of the movement in 1876–1906 as reflected in the figures of the Bureau of Statistics, 69; doubts as to these figures, 73; they understate the truth, 77.—Unreliability of statistics for emigration into particular countries of Europe, 78.—II. The Overland Movement, 79.—Unreliability of the official classification into "permanent" and "temporary" emigration, 80; total permanent emigration by another method, 83; extent of temporary emigration into Europe, 84.—III. The Oversea Movement. Transatlantic emigration in American figures, 88.—These figures higher than those of the Italian Bureau of Statistics, 91.—Inference that they are also more reliable strengthened by examination of other figures, 92.—Magnitude of the return movement from America, 95; as affected by American economic conditions, 98; growth of the return movement, 99.—Recapitulation and conclusion, 101.

Two main objects have been my goal in the present study. I have sought, first, to discover how great has been the movement of emigration from Italy and how great the movement of returning emigrants. Secondly, I have sought to discover how great has been the emi-

[1] The chief sources used in preparing this paper have been:—

(1) Direzione Generale di Statistica: Statistica della Emigrazione Italiana per l' Estero. Rome, 1877, to date. Usually issued annually, but at times for two-year periods. This, the most important source, is based upon information contained in applications for the passport, and gives for each year the number of emigrants, their sex, age, commune of origin, country of destination, the temporary and permanent emigration, and the number of those who return by sea.

(2) Commissariato dell' Emigrazione. Bollettino dell' Emigrazione. Rome, 1902, to date. More than a hundred numbers have appeared. They contain statistics—for transoceanic emigrants only—of number, age, sex, port of sailing, country of destination; much information regarding the steamship service and much regarding the conditions of life in the countries of immigration—the latter intended to reach the emigrant himself. Valuable special articles have also appeared.

(3) Commissariato dell' Emigrazione. Emigrazione e Colonie: Raccolta di Rapporti dei rr. Agenti Diplomatici e Consolari. Volume I, Europa. Rome, 1903–05, Volume II, Asia, Africa, Oceania. Rome, 1906. Volume III, America, is in preparation. This inquiry was undertaken in connection with the census of 1901. Representatives of the government were asked to reply to twenty-eight questions regarding the number of Italians resident in their districts, the kind and condition of employment, the attitude of governments, employers, friendly societies, and other matters important for the regulation of emigration.

gration of Italians to the several countries most generally chosen as destinations and how great has been the return of emigrants from these countries. These questions have been answered frequently before. A casual reading, however, of writings published in Italy and the United States discloses wide discrepancies in the answers. Where official sources are directly quoted, the differences are not less pronounced than where, in the more popular writings, no special regard is had for sources. Clearly, a study of the validity of the official statistics themselves should precede any unqualified acceptance of figures. It will be apparent in our discussion that in part such a study rather succeeds in throwing doubt upon some official figures than in establishing others really trustworthy. Yet some conclusions of interest, perhaps not heretofore conveniently stated, will, I hope, emerge.

I. The General Movement.

It may be best first to sweep the horizon and attempt to find what has been the total emigration from Italy. Our definition of "emigrant" must be wide enough to include any person who leaves his country either permanently, to settle in another country, or temporarily, for a period of months at least, to reside in a foreign country; and let us exclude any person travelling for pleasure, health, or business. This is the definition employed by the Italian statistical officials.

At the outset of our inquiry we meet a difficulty. There are no official figures for emigration from Italy before 1869. That this earlier emigration was not considerable seems certain. I. Sachs [1] accounts for this:—

> Avant 1859 l'émigration italienne était peu importante. Les anciens gouvernements mettaient des obstacles presque insur-

[1] I. Sachs, L'Italie, ses Finances et son Développement Économique depuis l'Unification du Royaume (Paris, 1885), p. 933.

montables à l'émigration. L'Autriche, par exemple, rendait l'expatriation très difficile; elle ne la reconnut pas comme un droit, et ne l'autorisa que dans quelques cas, à titre de concession, et par suite de circonstances spéciales seulement. Dans l'Italie méridionale on voyait l'émigration d'un plus mauvais œil encore. Là, il y avait des lois très sévères qui empêchaient toute émigration. Ce n'est qu'à partir de 1859 que celle-ci commença à prendre de l'importance.

But Sachs gives no figures for the years 1859–68. Jules Duval gives occasional figures for the transoceanic emigration of the earlier period, based on material in the Emigration Bureau of the (French) Ministry of the Interior.[1] In the years 1835–42, he says, 7,894 Sardinians arrived at Montevideo; in 1856, 2,738 Sardinians sailed for Buenos Ayres; by September, 1856, more than 3,000 emigrants had procured passports since the beginning of the year; in June, 1860, there were 12,755 Italians in Algeria; at Buenos Ayres and Montevideo there was "un noyau de quelque importance"; in the later '50's a Brazilian colonization society was successfully inducing Italian emigrants to go to Brazil; and so forth. Official figures for the early immigration into the United States and Argentina, we may here say by anticipation, were small. At this point it is only important to note that Italian emigration, tho slight, was at least a fact many years before the government began systematically to collect statistics. Probably it had in some sense been connected with the old commercial voyages of the North Italians. Duval found it *à propos* to quote the saying, "Dans quelque endroit du monde que l'on ouvre un œuf il en sort un génois."

The year 1869 marks the beginning of official statistics of emigration. Data were collected by a somewhat different method from that pursued in 1876 and thereafter,

[1] Histoire de l'Émigration au XIX^e Siècle (Paris, 1862), pp. 155 ff. and 248 ff.

at first by the Ministry of the Interior and later by the Hon. Leone Carpi with the assistance of the Ministries of the Interior and of Foreign Affairs.[1] The figures are as follows:[2]—

	Total.	*Temporary.*	*Permanent.*	*Clandestine.*
1869	119,806	83,565	22,201	14,040
1870	111,459	83,588	16,427	11,444
1871	122,479	96,384	15,027	11,068
1872	146,265	?	?	5,585
1873	151,781	?	?	11,921
1874	108,601	?	?	17,362
1875	103,348	?	?	27,253

Unless, as is unlikely, these early figures were collected by a method superior to that pursued later, they must probably be considered as under-statements of the truth. Sachs declares that a parliamentary commission, which had considered the emigration question in 1879, had been unwilling to admit that there had been a decrease in emigration after 1873. He says:—

> On ne peut, en effet, accorder qu'une valeur relative aux chiffres de l'émigration clandestine qui augmenta sensiblement de 1874 à 1876, lorsque les mesures restrictives pour la délivrance des passeports pour l'Amérique était en vigueur.[3]

In 1876 the Bureau of Statistics,[4] acting under the Ministry of Agriculture, Industry, and Commerce, began a collection of statistics which has been continued to the present day. The series is important from several points of view. It is the only series which extends over a long period of years. It is the only series which includes emigration into other countries of Europe and into North Africa, considering as well the countries of destination singly. It is the only series which gives the emigration

[1] Statistica della Emigrazione 1887, p. v. The results of the collection were published, under Carpi's name, in a work called Delle Colonie e dell' Emigrazione di Italiani all' Estero (Milan, 1874), which I have been unable to see.

[2] Ibid., p. vi.

[3] Op. cit., p. 934.

[4] I shall thus translate Direzione Generale della Statistica.

by compartments,[1] provinces, and communes. In addition, it gives valuable groupings by age and sex, and until 1903 classified all emigrants either as "Permanent" or "Temporary." The series possesses further the extrinsic importance of having been more widely quoted than any other. Partly this has been, for reasons given, inevitable; but for the emigration to transoceanic countries ignorance of better figures or—one suspects in recent years—the desire to quote high figures has played a chief part.

The unique importance of these figures requires that they be carefully studied. Before undertaking to do this, it seems best, however, to reproduce in tabular form the significant figures of the collection.[2] For the period before 1906 I have prepared quinquennial averages:—

Annual Averages.	*Total Emigration.*	*Europe and the Mediterranean Basin.*	*Transoceanic.*
1876–80	108,797	82,201	26,596
1881–85	154,141	95,146	58,995
1886–90	221,977	90,694	131,283
1891–95	256,511	109,067	147,444
1896–1900	310,435	148,533	161,901
1901–05	554,050	244,808	309,242
Single Years.			
1896	307,482	113,235	194,247
1897	299,855	127,777	172,078
1898	283,715	147,803	135,912
1899	308,339	167,572	140,767
1900	352,783	186,279	166,503
1901	533,245	253,571	279,674
1902	531,509	246,855	284,654
1903	507,976	225,541	282,435
1904	471,191	218,825	252,366
1905	726,331	279,248	447,083
1906	787,977	276,042	511,935

The total number of recorded emigrants for the thirty-one years 1876–1906 is almost nine millions. A great

[1] The sixteen *compartimenti* embrace the sixty-nine *provincie*. The *compartimento* is not an administrative division, but is retained in official classifications because it conveniently marks off important regional differences.

[2] Data may be found in nearly all numbers of the Statistica della Emigrazione.

growth has taken place in both the oversea emigration and the European. The quinquennium 1886–90 marks a turning-point in the history of Italian emigration. While the total emigration increased much, that into Europe changed slightly, and for the first time in its career was surpassed by the American current. In other words, the stream that had begun to flow so copiously into Europe was now largely diverted into America, more than doubling the volume of the older current. In the twenty years that have elapsed since, the emigration into America has apparently remained in excess of that into Europe. In 1901 there was a sharp bound in the movement. The new level was virtually maintained until 1905, when another sharp bound occurred, chiefly in the oversea emigration, and again the new level was maintained through 1906.

The next table gives the figures for emigration into the principal countries.[1] I have omitted those for American countries because special discussion of them is best preceded by a somewhat extended study of other figures:—

Annual Averages.	*Austro-Hungary.*	*France.*	*Switzerland.*	*Germany.*
1876–80	19,196	36,256	12,884	7,315
1881–85	25,625	44,500	7,032	6,927
1886–90	34,118	30,114	7,203	10,351
1891–95	36,345	26,897	12,166	15,249
1896–1900	46,287	24,960	25,647	30,941
1901–05	54,454	54,299	53,828	56,021
Single Years.				
1896	29,240[2]	17,967	18,311	17,245
1897	30,440	19,566	25,266	21,080
1898	33,399	22,927	27,613	26,852
1899	31,872	25,047	29,282	40,283
1900	45,338	39,292	27,761	49,243
1901	69,328	59,162	45,785	46,934
1902	44,138	59,777	50,237	52,885
1903	45,819	48,993	45,780	53,553
1904	35,853	45,559	52,263	55,049
1905	44,412	58,002	75,080	71,624
1906	32,650	62,497	80,019	67,620

[1] Data may be found in the various numbers of the Statistica.

[2] The remaining figures in this column are for Austria only.

The emigration into each of the four countries included in this table is much greater than that into any other country of Europe. An average of about 54,000 emigrants a year in 1901–05 entered each of these countries. Austro-Hungary and France have grown irregularly. From 1876 to 1885 the emigration into European countries was greatest into France; from 1886 to 1900, greatest into Austro-Hungary. Before 1900 the emigration into Hungary was about half that into Austria, since it has averaged one-tenth to one-fourth. Emigration into France reached its lowest point in 1896. This period of strained relations between the two countries is thus strangely reflected in the barometer of emigration. In 1901 the emigration into France suddenly sprang to a new level, and has been high since. Since the middle '80's the average annual emigration into Switzerland has, roughly speaking, doubled with each quinquennium. Since 1890 emigration into Germany has progressed similarly. Throughout the previous decade Germany was herself still sending forth heavy annual quotas of emigrants, and indeed in the earlier '90's also, so that she could hardly be expected to receive many immigrants, even from such a country as Italy.[1]

These four countries have all in the last few decades undertaken great works of construction, and have in general developed mines and manufactures. They have thus opened a market for his labor to the Italian *bracciante* and factory hand. Men, women, too often children, have eagerly offered their services upon hard terms for the living that their native country stinted them. But we must note, too, that these four countries lie very close to Italy. It is simpler for the North Italian to enter Ticino than to migrate to Central Italy. Ventimiglia is at once

[1] There is to-day a heavy emigration from Austro-Hungary, but the Italian immigration into that country gravitates to regions from which there is little emigration.

Vintimille. Belluno and Udine, great reservoirs of temporary emigrants, lie merely across the border from Austro-Hungary.[1] The emigration into these four countries is more of a kind with the extraordinary internal migration of Italy than with the transoceanic movement.

The more distant countries of Europe receive few immigrants. Russia, Spain, Portugal, Belgium, the Scandinavian countries, receive a negligible number. Great Britain, after crossing the 1,000 line, crossed 4,000 in 1906. The Balkan States, in 1890–1900, received an average of about 14,000 a year, but since 1900 only 2,000 to 4,000 a year. Egypt fluctuated about one and two thousand before 1904, then and in 1905 reached 4,500. Algeria and Tunis have long received many South Italians,—in 1900, 3,831, and since 7,500 to 9,500 per year.

What now of the value of these figures? The early official reports made few qualifications.

> On the whole [says one of them], we have reason to believe that our statistics . . . represent with sufficient approximation the departure of our compatriots in search of temporary occupation or of permanent employment.[2]

In 1902 a slightly more guarded statement appears:—

> Although the authorities endeavor to keep as accurate an account as possible of those who emigrate, whether for some months only, or for an indefinite period, the official statistics do not, however, succeed in measuring the movement with absolute precision.[3]

Upon the method of collecting these figures of the Bureau of Statistics we have explicit information.[4] Whoever

[1] Of late years, however, the emigration from these provinces has been more strongly into Germany (especially Bavaria) than into Austro-Hungary.

[2] Statistica della Emigrazione nell' Anno 1887, p. iv.

[3] Statistica della Emigrazione negli Anni 1900 e 1901, p. 5.

[4] See, *e.g.*, Bollettino dell' Emigrazione, 1902, No. 1, p. 51.

would emigrate is expected to apply in person or in writing to the *sindaco* (mayor) of his commune, who, after granting the *nulla-osta* (which indicates that there are no legal obstacles to the emigration of the applicant), procures the passport from the prefect or sub-prefect of the province, and delivers it to the applicant. Until 1901 the passport for a laborer cost 2.40 lire.[1] Since 1901 it is free, and is valid for three years.[2] The *sindaco* recorded the number of those who had been granted the *nulla-osta* and the number of those who, by whatever avenues of information, had been reported as having gone without a passport; and the combined numbers he called the emigration from his commune. In 1904 the work of compilation was taken over by the officers of public safety, who every three months, in every *circondario* and province, performed their task upon the basis of passports actually granted.

If all emigrants procured passports, or if all those who did not became known as such to the *sindaco*, there would be little reason to question the final totals for emigration. Since 1901 the passport is obligatory for all emigrants sailing from Italy or by authorized carriers from Havre. As we shall see, this transoceanic movement of late years has been rather overstated than understated in the figures of the Bureau of Statistics. But the obligatory provision did not apply before 1901, nor has it ever applied to emigration into countries of Europe. Clearly, another test must guide us. Does the usefulness of the passport make it a desirable document to possess? Undoubtedly, in some countries of Europe, but not all, the passport materially helps the emigrant to get work. But the emigrant may not realize this. He may expect to return to Italy soon, and may not think it worth the inconven-

[1] Bollettino, 1902, No. 1, p. 18. There were often preliminary costs also.

[2] Bollettino, 1902, No. 1, p. 51.

ience, delay, and expense necessary to obtain it (the cost of a passport before 1901 was equal to one to three days' wages). And members of his family who are to accompany him may not be fully recorded.

Other considerations are important. There is a heavy internal seasonal migration in Italy, sometimes reaching, it is officially estimated, a million persons annually. It must often happen that a propertyless peasant, migrating from one province to another, and recorded, if at all, merely as an internal migrant, is induced to join others in emigration to France or Germany, and may never become known to his *sindaco* as an emigrant. The emigrant may further leave to escape military service[1] or to flee penal justice. He may be induced by agents of steamship companies not recognized by the Italian government as emigrant carriers to leave from a French or German port, a lower rate being charged for an unprotected, unregulated service.[2] Since 1902 the passport is refused to persons likely to be debarred from foreign ports, but whom unauthorized carriers often succeed in enrolling by promises of admission.[3]

It is certain, on the other hand, that some persons who receive the passport never emigrate. Their number is probably inconsiderable (an exception will be noted later). Since 1901 the passport is valid for three years, consequently a man may, since that date, emigrate thrice in three years, and yet be recorded only once. Some persons receive the *nulla-osta*, thus being recorded as immigrants (before 1904), to whom the provincial authorities, however, refuse the passport.[4]

[1] Bodio declared this to be the chief source of the secret emigration. See Di Alcuni Indici Misuratori del Movimento Economico in Italia (Rome, 1891), p. 6.

[2] There is much in the Bollettini about the prosecution of fraudulent agents.

[3] Bollettino, 1902, No. 12, p. 72.

[4] Bollettino, 1907, No. 14, p. 5. They may, however, leave without the passport.

But one of the greatest sources of error is the general unreliability of the operations of the *sindaci* who, until recently, compiled the statistics. The Italian commune has never been won over to work in sympathy with national measures. A governmental investigation, held in 1903, showed that "in many communes the registers of the *nulla-osta* were not regularly kept." [1] This same investigation, it is elsewhere stated, discovered that

> more and more rarely were the communal authorities found to have inquired whether persons had emigrated from the locality without providing themselves with the prescribed documents; so that the number of persons recorded as only known through public report to have emigrated, had in late years fallen almost to zero, account having been kept of them in only four or five provinces.[2]

G. Prato, who has written much upon Italian emigration, declared somewhat earlier,—

> For some districts the existence of a large fraudulent emigration, not unknown and at times notoriously furthered by the local authorities, almost inevitably casts suspicion upon the official figures.[3]

The emigrants who had departed from their country without passports, but had been reported to the *sindaci* of their communes, are given in the following table:[4]—

		Average per Year.
Period, 1887–91	186,439	37,287
" 1892–96	169,250	33,850
" 1897–1901	208,729	41,745
Year 1902	17,290	
" 1903	28,278	

[1] Bollettino, 1907, No. 14, p. 5.

[2] Statistica della Emigrazione negli Anni 1902 e 1903, p. vi.

[3] Riforma Sociale, June 15, 1901, L' Emigrazione Temporanea Italiana, etc p. 552.

[4] Compiled from the Statistica for 1902 and 1903, p. ix.

It is really upon the validity of these figures that the value of the compilations of the Bureau of Statistics rests. If they depart far from the facts, the totals given for emigrants from Italy cannot have much meaning. An official statement of their value has been given.

> This negligence [in not recording persons emigrated without the passport] was in some measure justified by the fact that nowadays nearly all those who go abroad in search of labor procure a passport as a certificate that is useful and practically necessary to establish their identity before the police authorities, and to be able to call upon the Italian consuls abroad for assistance.[1]

This account, having reference to the findings of the investigation of 1903, declared that the custom of recording emigrants departed without the passport had only lately fallen into disuse; that is, the earlier records are supposed approximately correct.

Some evidence can be had, however, to show that neither the early nor the late records for emigration without the passport come close to the truth. In a report of the Society for the Protection of Temporary Emigrants into Europe we read:—

> When one notes that in 1889 [when 94,823 emigrants were recorded as having gone into European countries] 120,000 emigrant laborers passed through the stations of Basel and Schaffhausen alone, and that the results of investigations repeated for a series of years in ten other centers of the Swiss Confederation show that thirty out of one hundred emigrants possessed no passport—the only means of official record—and that a great number of them had crossed the frontier on foot, one can calculate that our continental emigration in 1899 must have consisted of an army of over 400,000 workmen, while the governmental statistical bureau announced only 177,031.[2]

[1] Bollettino, 1907, No. 14, p. 5.

[2] Consorzio per la Tutela dell' Emigrazione Temporanea nell' Europa Continentale, Relazione (Milan, 1904), p. 6.

This statement is not conclusive, but it is plausible. More convincing are the facts urged by Dr. Cosattini in his valuable monograph on the emigration from the Friuli, the first to appear of a series of studies upon the emigration from special sections of Italy made by government experts.[1] Cosattini supplemented the government figures —which are "far below the truth" [2]—by personal investigations made in the various communes. But his most striking facts are based on the sales of railway tickets, during March, April, and May, for frontier destinations or beyond. A reduced third-class fare for these destinations is granted to groups of five or more men who present a request from the *sindaco*. To the number of these Cosattini has added those third-class passengers who, not departing in groups of at least five persons, have paid the full fare. Of this number, some certainly are not emigrants, but the procedure is justified because the departures in these three months are four times as numerous as during the other months;[3] and only the temporary emigration movement could explain this. He then makes the following comparison:[4]—

Railway Figures.		*Bureau of Statistics (temporary emigration).*	
1898, 3 months	65,023	1898, 12 months	50,598
1899, "	64,464	1899, "	55,536
1900, "	63,350	1900, "	43,306
1901, "	63,660	1901, "	49,448
1902, 2 months	48,534	1902, "	45,125

Allowing for the reduced emigration during nine months of the year, it would still hold that almost twice as many persons emigrate from this greatest recruiting ground in Italy as are recorded in the official figures.[5] It would be

[1] G. Cosattini, L' Emigrazione Temporanea del Friuli, No. 3 of the Bollettino for 1904.

[2] Ibid., p. 19.

[3] Ibid., p. 20. 79 per cent. leave in March, April, and May; 75 per cent. leave in March and April alone.

[4] Ibid., p. 19.

[5] Ibid., p. 6.

hazardous to apply this proportion to the emigration from the rest of Italy, but a substantial correction must certainly be made.

II. The Overland Movement: Temporary Emigration.

It seems indeed impossible to reconstruct the official figures for emigration. The considerations thus far urged have had reference largely to emigration into Europe. We shall see later that a correction must also be made in the figures for oversea emigration, again as an augmentation. At present one or two special aspects of emigration into European countries claim consideration. The passport is valid for any of them, although granted for a particular one. The emigrant recorded as having gone to Switzerland may stay in that country only a few weeks, then pass on into Austria or Germany or France, and to and fro indefinitely. And the emigrant not possessed of a passport may of course do the same. In the voluminous special consular reports of 1901, prepared in answer to questions upon emigration, contained in a circular letter addressed to Italian diplomatic and consular agents in all countries, consuls in Switzerland, Germany, and France declared these migrations from country to country to be frequent.[1] And this is what we should expect. The Italian emigrant is primarily a laborer. The possibility of earning a very little more than the grudging modicum proffered him by his own country lowers for him those bars of language, nationality, and social life which so effectually maintain the distinctness of communities economically advanced enough to maintain a developed "leisure class." During the building of the Simplon tunnel, Pasquale Villari asked some Italians there employed whether they

[1] Emigrazione e Colonie. For France see vol. i., Part I., p. 115; for Switzerland, vol. i., Part II., p. 86; for Germany, vol. i., Part III., p. 107. There are other passages also.

loved their country. He says, "They answered me, smiling, as if I had spoken of some stranger, 'Italy is for us whoever gives us our bread.'" [1]

We must guard ourselves, however, not to lay too much stress on this migration from country to country, as determining the invalidity of official figures. It is likely that contrary currents largely compensate each other.

One more question pertaining to emigration into Europe remains to be considered. How many of the emigrants will return to their country? Italy early recognized the moment of this question. In 1869–71 [2] all emigrants were classified as "permanent" or "temporary,"—upon what basis I have not learned. The Bureau of Statistics in 1876, the first year of its operation in the field of emigration, listed every emigrant either under "Permanent Emigration" (or "Emigration Proper," or "for an indefinite term") or under "Temporary Emigration" (or "periodic"). The terms in parentheses, altho they mean different things, are variously interchanged with the others in subsequent records; but a single purpose is evident in the classification. A table for these figures follows:—

	Temporary.	*Permanent.*		*Temporary.*	*Permanent.*
1876 . . .	89,015	19,756	1890 . . .	112,511	104,733
1877 . . .	78,126	21,087	1891 . . .	118,111	175,520
1878 . . .	77,733	18,535	1892 . . .	116,298	107,369
1879 . . .	79,007	40,824	1893 . . .	122,439	124,312
1880 . . .	81,967	37,934	1894 . . .	119,868	105,455
1881 . . .	94,225	41,607	1895 . . .	123,668	169,513
1882 . . .	95,814	65,748	1896 . . .	123,862	183,620
1883 . . .	100,685	68,416	1897 . . .	134,426	165,429
1884 . . .	88,968	58,049	1898 . . .	156,928	126,787
1885 . . .	80,164	77,029	1899 . . .	177,031	131,308
1886 . . .	86,474	85,355	1900 . . .	199,573	153,209
1887 . . .	87,917	127,748	1901 . . .	281,668	251,577
1888 . . .	94,743	195,993	1902 . . .	286,292	245,217
1889 . . .	105,319	113,093	1903 . . .	277,135	230,841

[1] Nuova Antologia, January 1, 1907, L' Emigrazione e le sue Conseguenze in Italia, p. 53.

[2] See first table above.

By Carpi's figures for 1869–72 the temporary emigration was four to six times as great as the permanent. This excess is maintained in 1876, when the figures of the Bureau of Statistics begin; but it declines fast during the next decade, and in 1886 the temporary falls below the permanent. It remains generally below it until 1898; then and thenceforth surpasses it slightly. Throughout the period the number of temporary emigrants corresponds rather closely with the number emigrating to countries of Europe, and of course the number of permanent emigrants corresponds as closely with the number of transoceanic emigrants. Do the statistics correspond as closely with the truth?

Few figures published by the Bureau of Statistics have had so wide a currency as these. They have passed into the general statistical literature on emigration apparently without a challenge.[1] And yet the challenge is necessary. Is it certain that the question of the *sindaco*, whether the emigrant is leaving for a few months only or whether permanently, is correctly answered?

The Italian peasant laborer, so unskilled that he can be put only to pick and shovel work in another country, whose entire property can often be carried in a bundle, who feels the scantiness of his earnings at home and hears of greater possible earnings elsewhere, often joins a band of emigrants without much planning about the future. He is young and ready for experiment, and he feels that other lands cannot treat him more harshly than his own. He clings to Italy, yes, but—Italy is whatever land will give him his bread. This man must often not know what

[1] So, *e.g.*, Mayo-Smith, Emigration and Immigration, p. 19. Mayo-Smith even identifies the "temporary" emigration with that to "neighboring countries" and the "permanent" with that to "countries outside of Europe." *Cf.*, also, Gonnard, L'Emigration Européenne au XIX^e^ Siècle (Paris, 1906), p. 187; he accepts the figures implicitly.

answer to give to the *sindaco*.[1] The *sindaco*, unless he be an exceptional officer, will not take much trouble even about ascertaining the real state of the man's mind. And if the answer is given, and is clear, still the emigrant, when he reaches another land, may change his decision. Where most of the man's life is still before him, he often cannot, even if he would, answer the momentous question of the *sindaco*.

But the most eloquent argument against these statistics proceeds from the action of the statistical officials themselves. After thirty years of record and tabulation, in 1903, they brought the series to an end,—an admitted failure. "These figures" the Parliamentary Commission of Vigilance upon the Emigration Funds reported to the Chamber, . . . "cannot give an exact account of the phenomenon."[2] The governmental investigation already alluded to had found the task of learning the future plans of emigrants "so difficult that in most cases it was neglected, and the classification was made by the officers by conjecture."[3] Inspection of the registries of passports showed that the distinction had been made "upon uncertain and arbitrary grounds. In some *circondari* the entire transoceanic emigration was considered permanent in the absence of information as to opposite intentions. In others, analogous groups were assigned to the periodic emigration, because it had been found that in preceding years many persons who had gone to America had returned after a brief stay."[4]

The figures, however, are not wholly worthless. The permanent emigration can, for a long period of years, be

[1] The Italian consuls in France agreed that the Italian emigrants do not usually know, when they leave Italy, whether their absence will be permanent or not. (Emigrazione e Colonie, vol. i., Part II., p. 63.) This statement certainly seems unduly strong.

[2] Bollettino, 1904, No. 11, p. 11, Relazione della Commissione Parlamentare di Vigilanza sul Fondo per l' Emigrazione.

[3] Bollettino, 1907, No. 14, p. 6. [4] Ibid.

measured by another and more reliable method, and the results of the two methods compared. By deducting from the excess of births over deaths in the intercensal period 1882–1901 (there was no intermediate census), the actual increase in the population of Italy recorded by the census of 1901, the result will represent the actual net loss by emigration in the intervening period. The Italian vital statistics and censuses seem trustworthy enough to justify the computation. The census of 1882 was taken on the 1st of January; that of 1901 on the 10th of February. I have accordingly estimated the excess of births over deaths January 1–February 10, 1901, as one-ninth of the year's total. Similarly for the "Permanent" emigration of the Bureau of Statistics in January 1–February 10, 1901, I have estimated one-ninth of the total emigration for the year. This seems fair, for the "temporary" emigrants of these forty days were also not included in the census; nay, it is probably a conservative over-statement, for the emigration at this period of the year is slight. Our calculation would then read somewhat as follows:—

Excess of births over deaths in the intercensal period January 1, 1882–February 10, 1901	6,206,059
Excess census 1901 over census 1882	4,015,625
Loss by emigration,—*i.e.*, net or permanent emigration . .	2,190,434
"Permanent" emigration of Bureau of Statistics for the same period	2,390,455
Excess of this over calculated permanent emigration . . .	200,021
Percentage of error of Bureau of Statistics	9.13

In effect, 10,000 persons a year on the average, who have been recorded as permanent emigrants, seem to have actually returned to Italy. Or, otherwise put, one person in eleven has been wrongly classified as permanent. Considering the difficulties inevitable in preparing the figures of the Bureau of Statistics, it seems surprising that the error is not greater. But the effective error by no means

measures the actual error. Since, so far as applicants for passports are concerned, the temporary and permanent emigrants have apparently long been nearly equal in number, there must have been a great compensating misrecord of permanent and temporary emigrants. It would be particularly hazardous to assume that the percentage of error which we have calculated can be applied to the statistics of any single year.

The computed figure 2,190,434 can be taken as representing with much accuracy the net or permanent emigration from Italy in the period considered. It gives no valuable clew to the extent of the temporary emigration. The total recorded emigration for the same period is 4,638,658. The difference between the two numbers, 2,448,224, cannot be taken to represent the temporary emigration of the period, because, as we have shown, the totals of the Bureau of Statistics for emigration are indefinitely understatements of the phenomenon.

Even if the classification of the Bureau of Statistics were trustworthy, it would help us little in treating the return movement for particular countries of Europe, since the classification has not been published for countries. For the method which I propose to follow to determine this migration, accuracy cannot be claimed, but the results would seem to be sufficiently approximate to be of some interest.

The seventh Bollettino of 1904 [1] gave figures for a census of Italians living in countries of Europe and elsewhere in 1881, 1891, and 1901. Mainly (we are considering only Europe now) the figures used were those of the official censuses of the respective countries. Where such were not to be had, consular estimates were accepted. The latter were necessary in only a few unimportant countries.

[1] Pages 210 ff.

Fortunately, the censuses in nearly every case were taken in December, the very month in which fewest temporary emigrants were living in other countries. Accordingly, the census figures should include almost only the Italians who could be called "permanent" emigrants. Securing these figures is the first step of our method. The second step consists simply in subtracting each census figure from its successor in the next decade. This gives the increase in the Italian population during the decade. The increase may be considered to represent that part of the immigration from Italy which belongs to the permanent emigration. The third step consists in deducting this figure from the immigration into the country from Italy during the decade, the difference being then the return migration into Italy. The last figure it is convenient to state as a percentage. In the following table the years represent census dates as well as the outer, comprehending years of the emigration period under consideration. The absolute figures are those of temporary or returned emigrants, and the percentages are those of returned emigrants in total emigrants for the period.

	Period.	Total returned.	Per cent. returned.	Period.	Total returned.	Per cent. returned.
Total Europe .	1881–91	858,978	91.3	1891–1901	1,243,305	85.9
France	1881–91	294,992	84.2	1891–1896	116,944	96.4
Germany . . .	1880–90	75,972	90.1	1890–1900	176,580	76.4
Switzerland . .	1880–88	50,734	99.3	1888–1900	143,754	65.6
Austria } Hungary } . .	1880–90	354,520	94.9	1890–1900	270,078	58.3
				1890–1900	123,093	97.4

Qualifications of this table at once suggest themselves. The chief of them is that the figures for returned emigrants are indeed not such, but represent rather emigrants disappeared from the country of destination in intercensal years. Some have died, not many probably, for not only are the emigrants in the best years of life, but also they

were a "selected" lot at the very moment of emigration. However, a part must replace older residents who have died. Some have migrated elsewhere, but the currents, we can assume, are in the long run largely compensatory; and, even where not so, the difference would immaterially affect the number of permanent residents, which is at all events small. Finally, many emigrants have permanently left the country without settling in a neighboring country. Of these a part have sailed for America without returning to Italy. All the rest have returned to Italy. These are the real temporary emigrants, and undoubtedly they are a great majority of those included in our figures. Unavoidably, in our calculation we have used the emigration figures of the Bureau of Statistics, and these we have discredited. We have, however, ventured to conclude that they indefinitely underestimate the truth, and so here we must assume that the backflow from Europe is indefinitely greater than the figures we have given indicate. That it is not less than these figures declare can be stated with much certainty.

More qualifications are necessary when we consider the several items of our table; but, again, they do not seem seriously damaging. The emigrants of one year do not necessarily return in the same year, but they probably do so. Hence this is, for decennial periods certainly, a negligible factor. The figures given for the total return from Europe are the least reliable; for, while the factor of emigration covers the ten years indicated, the census figures only in general cover the same ten years. Even here, however, a correction, were it possible, would only very slightly affect the units of our percentages. There has certainly been a growing tendency for Italians to become permanent residents of European countries, and this seems to be reflected in the general rate for 1891–1901. The French figures for 1891–96 suggest the contrary; but

in these six years, owing to the political difficulties between the two countries, the emigration to France fell off sharply and the return movement increased markedly. For Germany the great fall in the percentage of returning Italians in 1890–1900 is due partly to the growing tendency to settle definitely in the country and partly probably to a somewhat greater possibility in that country of securing work in the winter than in other countries. Switzerland, also, has fallen off, and more than Germany. In 1888–1900 many Italians doubtless found employment in the public works during the winter, but the increase in the winter Italian population is doubtless due largely to the tendency of Italians to become permanent residents of Switzerland. It is stated, for example, that Italians are beginning to take up and cultivate the mountain valleys abandoned as unprofitable by the Swiss.[1] Emigration into Hungary is decidedly of a temporary nature. For 1880–90 the figures are inextricably fused with those of Austria, but the large permanent emigration into Austria ascertained for 1890–1900 suggests that it may have been considerable also before 1890, and that the return movement from Hungary must have approximated 100 per cent.[2]

One interesting and highly important aspect of temporary emigration we have little means of studying. How many of those who return to Italy will emigrate again? As we shall see, some figures for this phenomenon can be had for the United States, but for European countries there appear to be no data. Beyond question a great part of the emigration from the northern provinces, especially the Venetian, is in this class. The annual emigration to countries of Europe by no means represents increments of so many new persons from year to year. As the net emigration to Europe is far from a "drain,"

[1] Emigrazione e Colonie, vol. i., Part II., p. 19.

[2] The absolute increase of the Italian population in Hungary in 1880–90 was only 1,328.

so the oft-alleged sundering of families is probably not so general as those who read simply the annual figures for emigration would have us believe.

III. The Oversea Movement.

In studying the extent of transoceanic emigration, we are not limited to one set of figures. This is a distinct advantage, for much can be learned from a comparison of series. Procuring a passport, sailing from a port,—Italian or other,—landing in America, are so many aspects of a single movement. There is, perhaps, fairly a presumption that the third of these makes the safest starting-point for a study of the movement: it is a bird in hand that is being counted when American statistics are collected.

Let us, then, first pass in survey the immigration into countries of America, as this is recorded in American figures. In the following table I have prepared annual averages for six recent quinquennial periods, and have presented the yearly figures for the period 1896–1906:—

Annual Averages.	*United States.*	*Brazil.*	*Argentina.*
1877–81	8,217	—	16,553
1882–86	23,084	12,600	39,088
1887–91	50,499	68,847	57,089
1892–96	56,048	94,019	42,587
1897–1901	87,249	39,971	49,513
1902–06	224,649	17,505	71,714
Single years.			
1896	68,060	94,277	75,204
1897	59,431	74,560	44,678
1898	58,613	28,794	39,135
1899	78,730	22,557	53,295
1900	101,662	17,167	52,143
1901	137,807	56,779	58,314
1902	180,535	29,463 (?)	32,314
1903	233,546	9,886 (?)	42,358
1904	196,028	12,576 (?)	67,598
1905	226,320	17,657 (?)	88,950
1906	286,814	17,955 (?)	127,348
1907	294,061		

The table may be briefly supplemented. Records for the United States begin in 1820, when 30 Italians arrived. There were less than 75 a year till 1833; less than 200 till 1848; 1,263 arrived in 1854; there were less than 2,000 till 1870, when 2,891 arrived; the year 1873 brought 8,757, a number not again reached till 1880, when 12,354 arrived. In 1887–1907, 2,386,882 were admitted. As the figures in the table indicate, the growth has been a recent one. By the census of 1850 the Italians in the United States (3,679) were very slightly in excess of the Swedes (3,559). At each successive census, through that of 1900, the Swedes were decidedly in the majority, tho clearly losing ground, relatively, in the decade before 1900.

With some justice Professor Mayo-Smith has written, "Our most perfect statistics probably are those of immigration." [1] The rigorous efforts of the United States government, certainly since the Italian immigration became considerable, to discover and examine every incoming alien, hardly call for description here.

In the period 1855–80 more Italians arrived in Brazil than immigrants of any other nationality, and in every year since 1880 they have maintained their leadership. In the '80's great numbers came whose passage from Italy was supplied free by the government. But in the late '90's a crisis in coffee-growing occurred. Stories of failure to pay wages, of a paper money not legal tender, of corporal punishment and other grave evils, reached Italy, and the Italian government discouraged further emigration. Thereupon the emigration fell off greatly. In 1898 the Brazilian government ceased to collect statistics of immigration, resigning that function to the States, which have inadequately performed their task.[2] It can-

[1] Statistics and Sociology, p. 333.

[2] Only Sao Paolo and Minaes Geraes officially publish figures. (Bollettino, 1907, No. 14, p. 18.)

not even be said that the earlier statistics for immigration into Brazil are good. A German resident in Brazil wrote in 1885 that of 25,845 immigrants (of all nations) arrived in Brazil in 1882, the government had recorded only the 1,352 who had come upon a free passage. Brazilian statistics, he declared, must be considered merely as minima.[1]

Statistics for immigration into Argentina were first collected in 1857. There was a steady growth from 3,000 Italians in that year to over 9,000 in the first decade; in 1873, 26,878 arrived; after considerable fluctuation, this number was slightly surpassed in 1882, when the rise began —especially under the stimulus of gratuitous transportation—which culminated in 1889 with 88,647 immigrants. A severe crisis then broke upon the country, and the years 1890 and 1891 brought only 39,122 and 15,511 Italians, respectively. After some fluctuation, generally on a low level,—for recovery from depression was slow,—the high mark of 1889 was overpassed in 1905 and 1906. In the entire period 1857–1906, 1,615,432 Italian immigrants entered the republic. The Argentine statistics are based on information contained in the passenger lists of vessels that arrive at Buenos Ayres, and may be regarded as fairly accurate.[2]

The other American countries have not been, comparatively speaking, important destinations of Italians. Uruguay has long received 2,000 to 5,000 a year, but in 1889 and 1890, by way of a striking exception, 15,047 and 12,873. Canada before 1900 received a few hundreds per year; since, 4,000 to 8,000 a year. In the last decade, indeed, Italian emigration has noticeably been pushing

[1] C. von Koseritz, p. 285 of Bilder aus Brasilien (Leipzig and Berlin, 1885), based on articles originally contributed to a Porto Alegre newspaper.

[2] An annual immigration, not classified by nationalities, comes by way of Montevideo, the journey from Europe having been made upon vessels that do not go as far as Buenos Ayres.

its way with growing decision into all parts of America. Probably no emigrant people before has so freely fixed its abode in such diverse lands.

It is desirable to compare the statistics we have been considering with those secured by the Italian Bureau of Statistics on the basis of *nulla-osta*, or passports granted. Before 1901 the passport was not obligatory. We should therefore expect many persons to have emigrated in this period without the passport, especially since in neither North nor South America does the passport possess the usefulness it possesses in some regions of Europe. Since 1901 emigrants may not depart from Italian ports without the passport. In these circumstances it is probable that some persons have taken out the passport, which is free, without actually emigrating. The following table would seem to confirm these probabilities. The quinquennial totals are for immigration according to the American statistics. The figures of the second column represent, according as they are preceded by a (+) or (—) sign, the amount by which the American figures are greater or less than those of the Bureau of Statistics:—

	United States.		Brazil.		Plata.[1]	
	Totals.		Totals.		Totals.	
1877–81 . . .	41,085	+17,584	—	—	82,766	+23,880
1882–86 . . .	115,419	+22,839	62,989	+16,564	233,739	+69,685
1887–91 . . .	252,495	+61,655	344,235	+73,460	330,020	+65,611
1892–96 . . .	280,240	+68,318	470,094	+42,039	240,651	+39,036
1897–1901 . .	436,243	+56,210	199,855	—55,857	264,317	+36,528
1902–06 . . .	1,123,243	—138,890	87,537	—58,215	372,999	+38,380

[1] The Bureau of Statistics comprehends in this term Argentina, Uruguay, and Paraguay. The last country receives a very slight immigration, which has not been included in the American figures.

In regard to the United States only nine-tenths of those who in 1902–06 secured passports actually came to the United States. Here, however, it must be borne in mind that the American figures refer to the fiscal year which closes in June, and that the period July-December, 1901, included in the figures by no means compensates for the period July–December, 1906, not included in them. Allowing for this, there would still be many who had secured passports, but not emigrated. For nearly a decade, conditions in Brazil have not favored immigration there. Apparently many immigrants who, on applying for the passport, had named Brazil for their destination, actually went to Argentina, and some, also, perhaps, who had given the United States as their destination. A third and smaller part of the Argentine immigration is probably included in passengers from non-Italian ports who possessed either no passport or a passport for European countries.

But the probabilities we have been considering are not proofs that the American figures are superior to those of the Bureau of Statistics. Fortunately, some interesting data of another sort can be adduced to strengthen materially these probabilities. The table which follows seeks to compare, for five-year periods, the number of immigrants actually arrived in America with the number who actually sailed from Europe. I have not given the absolute figures, but have stated by how much they are greater or less than the figures of the Bureau of Statistics for transoceanic emigration. This will facilitate comparison. The figures for sailings are those of the third-class passengers sailed from Italian ports according to the records of the port officials. To them I have added the number of Italian passengers embarked in other Eu-

ropean ports.[1] The American figures are the totals for Brazil, Argentina, and the United States.

I. *American figures greater or less than Bureau of Statistics according as + or —.*	II. *Sailings from Europe greater or less than Bureau of Statistics according as + or —.*	III. *II. greater or less than I. according as + or —.*
(1877–81 . . .	+ 41,464	+134,309	+92,845)[2]
1882–86 . . .	+109,088	+106,799	— 2,288
1887–91 . . .	+200,726	+188,570	—12,156
1892–96 . . .	+149,393	+149,636	+ 243
1897–1901 . . .	+ 36,681	+107,780	+71,099
1902–1906 . . .	—158,725	—120,383	+38,343

It will be noted that in the last decade, according to the figures, more persons have sailed for America than have arrived there. It may, however, be stated that the figures for sailings from Italy include also third-class foreign passengers (Greeks and Turks, *e.g.*), who in this last decade began to assume considerable importance; that on the American side the returns for Brazil have lately been defective; that the Italian immigration into other countries of America took on more appreciable proportions in the last decade; and, finally, that, as already indicated, the United States figures do not contain the heavy immigration of the second half of 1906 (but contain instead only the light immigration of an added semester a decade earlier). What the figures seem plainly to indicate is that the excess of American figures for the period before 1901 over Italian figures rests upon fact, and that here again, for the oversea emigration, as before for the European emigration, the figures collected on the basis of the number of *nulla-osta* granted are under-

[1] All the principal ports are included. So, likewise, are first and second class passengers, but these are an inconsiderable number, and may be taken to compensate for emigrants embarked in ports not included. The ports represented differ slightly from year to year. All data have been taken from recent numbers of the Annuario Statistico Italiano.

[2] Brazil and Uruguay are not included in the American totals for this period.

statements of the truth. It is interesting, further, to note that in 1902–06 the figures for sailings confirm the statement already made, that in this period more persons procured the passport than really emigrated.

Although our final preference must be given to the statistics prepared by the American countries of immigration, it is necessary, for the sake of completeness, to consider briefly still another series of figures. By a clause in the general Emigration Law passed in 1901 a permanent Commissionership of Emigration[1] was established. This bureau, which has become a very active factor in the regulation and protection of emigration, particularly of the transoceanic emigration, keeps a record of all emigrants who sail from the Italian ports and Havre. The new law requires so close a superintendence over the sailing of emigrants that a high degree of reliance may be placed on the statistics of number, sex, etc. The statistics for number are based on the taxes paid by the steamship companies for every emigrant. By taking the emigrants to the United States, month by month, and grouping them to correspond to our fiscal year, we get a series of figures closely similar to those recorded by our Commissioner-General under the caption "Italy, country of last permanent residence."

Considering that two to three thousand a year are debarred from the United States, that some Italians who sail from non-Italian ports give Italy as the country of their last permanent residence, and are therefore not included in our figures, and further considering that the two sets of figures do not refer to quite the same moment of time,—a June, 1905, emigrant perhaps being a July, 1906, immigrant,—the correspondence is so close as to enhance our confidence in both sets of figures. In the following table the first column gives the figures of the

[1] Commissariato dell' Emigrazione.

Italian Commissioner, the second those of our own Commissioner-General:—

1902–03	221,784	230,622
1903–04	188,501	193,296
1904–05	214,031	221,479
1905–06	287,523	273,120

Comparison of the Commissionership figures with those of the South American countries gives similar results. More interesting is a comparison with the figures of the Bureau of Statistics for transoceanic emigration, since both are Italian series:—

	Commissionership.	*Bureau of Statistics.*
1902	246,374	284,654
1903	265,566	282,435
1904	211,726	252,366
1905	350,951	447,083
1906	414,719	511,935

Again, the conclusion is inevitable that in recent years many persons who have taken out passports for emigration to oversea lands have not emigrated.

When we come to consider the return movement of Italians from the New World, we have little choice of figures. The United States has never kept a record of departing immigrants. The South American countries have partly done so, but have not classified their emigrants by nationality. The Italians procuring passports for emigration have indeed, until 1903, been classified as temporary or permanent emigrants. But, as we have seen, this distinction in practise gives approximately correct results only where the two classes are somewhat evenly distributed. When one considers either the European or the American immigration in isolation, the classes are not equally divided, and the results are more in doubt. Furthermore, emigration to America is a

much more momentous undertaking than emigration into a country of Europe; and, even if the emigrant had made up his mind regarding the term of his absence, his sojourn in the new country is actually contingent upon so many speculative conditions that he may later change his mind. It can hardly be reckoned a loss that the Bureau of Statistics has not published the figures of temporary and permanent emigration by countries.[1]

Our only source of statistics for the return migration into Italy may be said to be the record of passengers disembarked in Italian ports.[2] For the reflux over the land frontier, even when that has originated in America, we have no measure. The figures of the following table were collected by the Ministry of the Marine before 1901, and since that year by the emigration inspectors (upon the basis of passenger lists).[3] They are for third-class passengers only, and before 1902 include a negligible sprinkling of foreigners. The "total" includes more than the three specified countries. Since 1904 the figures for South American countries are partly incomplete.[4]

[1] I have found such figures for only four years. In 1900–03, of the emigrants destined for the United States, 131,920 were classified as temporary. In the same years at least 187,093 returned; and, in the four years beginning 1901, 284,358 returned.

[2] Another possible method, for the United States, consists in adding up the number of third-class passengers departed for Mediterranean ports. In the fiscal year 1906 there were 63,108. Including also Havre, a writer has proceeded as follows: "Remembering that eastern and southern Europeans return generally by way of Italy and Belgians by way of Havre, it cannot be far from the truth, after deducting 15 per cent. from the [transportation] companies' figures, to consider the balance as the approximate number of Italians who during the three years have left the United States." And he gives this table:—

	Italians sailed from the United States.
1901	32,266
1902	48,684
1903	83,333

(G. E. Di Palma Castiglione in American Journal of Sociology, September, 1905, p. 187–188.)

[3] See Statistica della Emigrazione, 1900 ff., and Bollettino, 1907, No. 14, p. 36. The Annuario Statistico for 1904, p. 117, gives some earlier figures.

[4] The Commissioner of Emigration is now seeking to complete these figures and separate the countries.

EMIGRANTS RETURNED TO ITALY.

	From the United States.	*From Brazil.*	*From Countries of the Plata.*	*Total.*
1887	3,000	317	14,519	18,039
1888	6,072	1,136	19,998	27,281
1889	4,734	3,603	25,125	33,576
1890	2,881	1,510	41,476	45,880
1891	10,170	2,583	47,957	60,710
1892	12,695	7,566	31,438	51,699
1893	22,912	10,906	19,816	53,634
1894	26,845	5,300	22,209	55,221
1895	17,039	16,654	19,319	53,962
1896	20,885	16,794	19,997	58,607
1897	22,292	20,192	20,540	63,893
1898	24,735	17,489	28,110	71,687
1899	31,289	8,972	28,033	69,441
1900	31,966	17,733	29,419	80,570
1901	24,678	21,224	29,204	77,567
1902	52,216	29,701	23,813	95,336
1903	78,233	29,740	26,813	124,590
1904	129,231	43,170		177,692
1905	68,821	42,727		118,894
1906	96,210	52,230		156,273

What we should most like to know regarding the return movement is, What part of those who emigrate return? Of course our answer can be only historical, and, since we cannot follow up the career of each emigrant, an approximation. In the table which follows I have stated in percentages of total immigrants for five-year periods the number of returned emigrants for the same period. The basis of the latter figure is found in the last table above. For the total immigration into the several countries I have used the American figures also given above. For the transoceanic total I have used, on the one hand, the sum of the American figures for the United States, Brazil, Argentina, and Uruguay, and, on the other, the total returned emigrants from whatever country. In the last column, for the interest of comparison, I have used the figures of the Italian Commissionership as a base:—

PERCENTAGE OF RETURNED EMIGRANTS.

	Based on American statistics of immigration.				Based on Italian statistics of emigration, 1902–06.
	1887–91.	1892–96.	1897–1901.	1902–06.	
United States	10.63	42.97	30.93	37.90	38.77
Brasil	2.65	12.28	42.83	60.70	69.08
Argentina and Uruguay	45.23	46.87	51.19		
Total	20.01	27.46	40.33	41.87	43.97

Two tendencies of the emigration movement from Italy find expression in these figures. One is that it is very sensitive to changes in the economic conditions of the countries to which it moves. Many years ago, under authority of the Bureau of Statistics, the *sindaci* asked applicants for passports whether they were leaving Italy because driven from it by the hard conditions of life there or because they were seeking better circumstances in other lands. Probably these puzzling questions find a partial answer in our table. Emigration is checked whenever the chance of finding better circumstances elsewhere appears to be insecure. Thus, in 1892–96, for every five Italians who entered the United States, two returned to Italy,—a striking evidence of the conditions then prevailing in this country; and this proportion is four times as great as that of the previous quinquennium. The proportion of return emigrants, which had again fallen off in 1897–1901, rose substantially in 1902–06.[1] The low percentage of Brazil in 1887–96 reflects the prosperous period of colonization and the immigration of agricultural settlers, not of day laborers. Subsequent figures reflect

[1] From figures of the Italian Commissioner (Bollettino, 1908, Nos. 6 and 9) 283,671 Italians emigrated to the United States in 1907, and 177,278 returned,—the latter a record number. The returned, who are 62.1+ per cent. of the immigrants, arrived in Italy mainly in November and December. In December 5,033 persons departed for the United States and 52,532 returned.

the disorders of the coffee fazendas, which began about 1897. The countries of the Plata have long been regurgitating about half their immigrants. The revival of prosperity in Argentina is, perhaps, too recent to be reflected in our table; but another explanation is possible for this.

The figures for the total return movement from America especially bring out the second deduction that we have somewhat tentatively undertaken to make from our table. In the last twenty years the Italian emigration has become increasingly of a temporary nature. That the heavy reflux movement is not due merely to the unexpected occurrence of adverse conditions of employment (altho, as we have seen, this influence acts with extraordinary immediacy and thoroughness), is clear from various facts. One notes the high percentage of return emigrants from the United States in 1897–1901 as compared with 1887–1891, and the high percentage in 1902–06, almost as high as in 1892–96, when economic conditions were so radically different. From Brazil one expects for recent years a heavy backflow of the tide, but the Argentine Republic, despite a prosperity which has brought more immigrants to her shores per year than ever before, has certainly also sent great numbers back into Italy.[1]

It would be interesting to learn how much the Italian, once out of Italy, moves from country to country. That the phenomenon is not uncommon in Europe we have already noted, but it has never been measured there. For some years the United States has been asking what were the countries of last permanent residence of immigrants. Hundreds, sometimes thousands, of Italians, one finds, annually come to the United States from France,

[1] An opposite tendency was noted for the European movement, but the tendency there is slight, and probably does not largely express an emigration of families. In France the marriage of Italians with native women was specifically mentioned as a cause determining the permanent emigration into that country.

Germany, Austria, Switzerland, England. The number of Italians from non-European countries has, since 1900, grown unbrokenly.[1] In the fiscal year 1905, 1,208 came; in 1906, 1,979; in 1907, 5,082; and they came mainly from other countries of America.

We have no means of knowing how often the same emigrants repeat their emigration into countries of Europe. Italians who had "been in the United States before" are given in the following table:[2]—

1896	14,236	1902	15,304
1897	10,913	1903	17,071
1898	9,844	1904	20,233
1899	12,205	1905	47,504
1900	12,347	1906	38,104
1901	14,541	1907	20,378

The number for 1904 is 10.36 per cent. of the Italian immigration of that year. For the following three years the percentages are 21.44, 13.95, and 6.93, respectively. In the decade 1897–1906 they numbered 41.19 per cent. of those recorded at Italian ports as having returned from the United States; that is, two out of five Italians who had returned from the United States re-emigrated. It is unfortunate that this sort of calculation is impossible for other countries. Four-fifths of our immigrants come from South Italy. Something like the same proportion of the immigrants into South America come from North Italy. And North Italy, as the demonstrated prolific source of a temporary emigration into Europe in which the same persons play a large part, doubtless sends a large emigration of similar character into South America.

[1] Data in reports of our Commissioner-General.

[2] Ibid. Naturalised Italians should be added to the list. In 1905, 1,747 citizens of the United States emigrated from Italy, 1,669 from Naples alone. Citizenship, says the Bollettino (1906, No. 11, p. 67), is a means of "avoiding the inconveniences" incident upon disembarkation in the United States.

We entered upon this study with two main purposes, to find the strength of the outflow from Italy and the backflow into Italy and to find the strength of the inflow into other countries and the outflow from them. A word of recapitulation may add definiteness to the picture we have drawn. Before the unification of Italy the emigration was slight. Since about 1875 it has grown steadily, making a sudden bound in 1901 to a new level, which it has since maintained. Official figures for the last three decades show an emigration of nine millions, but the number probably understates the truth by at least two millions. About two-thirds of the total emigration is of a temporary character. Of the emigration into Europe at least nine-tenths is such, and that into America has become increasingly temporary. It is safe to say that in the last dozen years at least 200,000 emigrants annually have returned to Italy; since 1900, between 250,000 and 350,000.[1]

And the permanent emigration presents figures equally striking. We have already given a figure for the permanent emigration in 1882–1901 calculated as the difference between the excess of births over deaths for the period and the growth of the census population. The following table, compiled by this method, presents the net or permanent emigration from Italy in 1862–1901.[2]

	Total Net Emigration.
1862–1871	16,253
1872–1881	362,335
1882–1901	2,190,434

Emigration has been ominously regarded by many Italians deeply concerned for the welfare of their country.

[1] Professor Commons in his recent Races and Immigrants in America (p. 77) states the number of temporary emigrants to be annually "probably over 150,000."

[2] Data may be found in various numbers of the Annuario Statistico.

The argument that it is necessary or natural, or that it returns great benefit to Italy may be accepted by them, but always there is unmistakably present a sentiment of regret. The aim of the present essay has already been accomplished, but it may not be inappropriate to present, in conclusion, a table which shows, better than any figures we have been considering, the effect of emigration upon Italy. The table[1] gives the percentage of males 21–50 years of age in total males at the censuses of 1881 and 1901:—

Compartment.	1881.	1901.	Compartment.	1881.	1901.
Piedmont	38.69	35.72	Latium	47.58	40.46
Liguria	39.03	39.72	The Abruzzi and Molise.	38.77	31.82
Lombardy	40.82	36.10	Campania	40.54	33.96
Venetia	39.03	34.18	Apulia	41.21	36.57
Emilia	40.85	35.95	Basilicata	38.90	32.77
Tuscany	40.32	35.68	Calabria	40.05	31.56
The Marches	38.72	32.92	Sicily	40.66	36.85
Umbria	39.58	35.64	Sardinia	43.08	34.61
			Total kingdom	40.29	35.59

The percentages of 1881 cannot be regarded as quite the normal ratio for the age-group 21–50 years in Italy. Altho the census was taken in January, when the temporary emigration was negligible, there had been in the previous decade a permanent emigration of 360,000 persons, of whom perhaps 275,000 were men in the age-group 21–50 years. Consequently, the percentages for 1881, to have value as a basis for comparison, should be slightly raised, especially in the case of the more northern provinces. Since 1881 the emigration from the southern provinces has been developed, and here the figures of the table probably state the phenomenon with closer accuracy. The significance of the decline is clear. For the entire kingdom the permanent emigration has in effect

[1] Reproduced from Bollettino, 1907, No. 11, p. 22.

deprived the country of one man in the fullest years of life out of every eight; for Campania and Basilicata, one out of six; for Calabria and Sardinia, one out of five.

What the future of Italian emigration will be it is here irrelevant to discuss. But a word seems appropriate in conclusion regarding the temporary phase of it. Writings upon emigration frequently enunciate a "law" of emigration. The first emigrants are nearly all men. After a while the women and children follow; emigration ceases—the cycle is complete. This generalization does, indeed, with some fairness describe the course of certain recent or lately declining migrations. But there seems to be no "inner necessity" in the law. The Italian emigration has, since its infancy, been composed, four parts out of five, of males, and of males chiefly in the productive years of life. Emigrants are for Italy a commodity,—one of her chief "exports," as an Italian writer has put it; and they play their part in settling international balances. It is unsafe to set forth "laws" of emigration without calculating the possible effects of a cheapened, rapid, ocean transportation service and the willingness of great nations to receive men for the strength that is in their arms and their readiness to toil hard during long hours for a low compensation. So long as these things continue, so long as there are poverty-burdened Italians whose Italy is whatever country will give them their bread, so long may Italian temporary emigration continue. And, as it has risen, so some day it may decline into insignificance without having ever, for a last step, become characteristically an emigration of families.

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ON THE NATURE OF CAPITAL:

INVESTMENT, INTANGIBLE ASSETS, AND THE PECUNIARY MAGNATE.

SUMMARY.

Introductory summary, 104.—Certain effects of investment and the price system, 105.—Intangible assets, their nature, derivation, and basis, 111.—Summary of analysis of assets, 115.—Tangible and intangible assets distinct, but mutually convertible, 116.—Dependence of all assets on industrial production, 122.—Non-capitalizable income from assets, 125.—Place and function of the "Pecuniary Magnate," 126.—"Timeless" gains from the use of (large) capital, 130.—Source of such "timeless" gains, 132.—Consequences for ordinary business men and ordinary profits, 135.

WHAT has been said in the earlier section of this paper[1] applies to "capital goods," so called, and it is intended to apply to these in their character of "productive goods" rather than in their character of "capital"; that is to say, what is had in mind is the industrial, or technological, efficiency and subservience of the material means of production rather than the pecuniary use and effect of invested wealth. The inquiry has dealt with the industrial equipment as "plant" rather than as "assets." In the course of this inquiry it has appeared that out of the profitable engrossing of the community's industrial efficiency through control of the material equipment there arises the practise of investment, which has further consequences that merit more detailed attention.

Investment is a pecuniary transaction, and its aim is pecuniary gain,—gain in terms of value and ownership. Invested wealth is capital, a pecuniary magnitude, meas-

[1] See this Journal for August, 1908. By an oversight the sub-title of the earlier section was omitted. It should have read: "The Productivity of Capital Goods."

ured in terms of value and determined in respect of its magnitude by a valuation which proceeds on an appraisement of the gain expected from the ownership of this invested wealth. In modern business practise, capital is distinguished into two co-ordinate categories of assets, tangible and intangible. "Tangible assets" is here taken to designate pecuniarily serviceable capital goods, considered as a valuable possession yielding an income to their owner. Such goods, material items of wealth, are "assets" to the amount of their capitalizable value, which may be more or less closely related to their industrial serviceability as productive goods. "Intangible assets" are immaterial items of wealth, immaterial facts owned, valued, and capitalized on an appraisement of the gain to be derived from their possession. These are also assets to the amount of their capitalizable value, which has commonly little, if any, relation to the industrial serviceability of these items of wealth considered as factors of production.

Before going into the matter of intangible assets, it is necessary to speak further of the consequences which investment—and hence capitalization—has for the use and serviceability of (material) capital goods. It has commonly been assumed by economists, without much scrutiny, that the gains which accrue from invested wealth are derived from and (roughly) measured by the productivity of the industrial process in which the items of wealth so invested are employed, productivity being counted in some terms of material serviceability to the community, conduciveness to the livelihood, comfort, or consumptive needs of the community. In the course of the present inquiry it has appeared that the gainfulness of such invested wealth (tangible assets) is due to a more or less extensive engrossing of the community's industrial efficiency. The aggregate gains of the aggregate material

capital accrue from the community's industrial activity, and bear some relation to the productive capacity of the industrial traffic so engrossed. But it will be noted that there is no warrant in the analysis of these phenomena as here set forth for alleging that the gains of investment bear a relation of equality or proportion to the material serviceability of the capital goods, as rated in terms of effectual usefulness to the community. Given capital goods, tangible assets, may owe their pecuniary serviceability to their owner, and so their value, to other things than their serviceability to the community; altho the gains of investment in the aggregate are drawn from the aggregate material productivity of the community's industry.

The ownership of the material equipment gives the owner not only the right of use over the community's immaterial equipment, but also the right of abuse and of neglect or inhibition. This power of inhibition may be made to afford an income, as well as the power to serve; and whatever will yield an income may be capitalized and become an item of wealth to its possessor. Under modern conditions of investment it happens not infrequently that it becomes pecuniarily expedient for the owner of the material equipment to curtail or retard the processes of industry,—"restraint of trade." The motive in all such cases of retardation is the pecuniary expediency of the measure for the owner (controller) of capital,—expediency in terms of income from investment, not expediency in terms of serviceability to the community at large or to any fraction of the community except the owner (manager). Except for the exigencies of investment, *i.e.*, exigencies of pecuniary gain to the investor, phenomena of this character would have no place in the industrial system. They invariably come of the endeavors of business men to secure a pecuniary gain or to avoid a pecuniary loss. More frequently, perhaps, manœuvres of inhibi-

tion—advised idleness of plant—in industry aim to effect a saving or avoid a waste than to procure an increase of gain; but the saving to be effected and the waste to be avoided are always pecuniary saving to the owner and pecuniary waste in the matter of ownership, not a saving of goods to the community or a prevention of wasteful consumption or wasteful expenditure of effort and resources on the part of the community. Pecuniary—that is to say, differential—advantage to the capitalist-manager has, under the régime of investment, taken precedence of economic advantage to the community; or rather, the differential advantage of ownership is alone regarded in the conduct of industry under this system.

Business practises which inhibit industrial efficiency and curtail the industrial output are too well known to need particular enumeration. Nor is it necessary to cite evidence to show that such inhibition and curtailment are resorted to from motives of pecuniary expediency. But an illustrative example or two will make the theoretical point clearer, and perhaps more plainly bring out the wholly pecuniary grounds of such business procedure. The most comprehensive principle involved in this class of business management is that of raising prices, and so increasing the net gains of business, by limiting the supply, or "charging what the traffic will bear." Of a similar effect, for the point here in question, are the obstructive tactics designed to hinder the full efficiency of a business rival. These phenomena lie along the line of division between tangible and intangible assets. Successful strategy of this kind may, by force of custom, legislation, or the "freezing-out" of rival concerns, pass into settled conditions of differential advantage for the given business concern, which so may be capitalized as an item of intangible assets and take their place in the business community as articles of invested wealth.

But, aside from such capitalization of inefficiency, it is at least an equally consequential fact that the processes of productive industry are governed in detail by the exigencies of investment, and therefore by the quest of gain as counted in terms of price, which leads to the dependence of production on the course of prices. So that, under the régime of capital, the community is unable to turn its knowledge of ways and means to account for a livelihood except at such seasons and in so far as the course of prices affords a differential advantage to the owners of the material equipment. The question of advantageous—which commonly means rising—prices for the owners (managers) of the capital goods is made to decide the question of livelihood for the rest of the community. The recurrence of hard times, unemployment, and the rest of that familiar range of phenomena, goes to show how effectual is the inhibition of industry exercised by the ownership of capital under the price system.[1]

So also as regards the discretionary abuse of the community's industrial efficiency vested in the owner of the material equipment. Disserviceability may be capitalized as readily as serviceability, and the ownership of the capital goods affords a discretionary power of misdirecting the industrial processes and perverting[2] industrial efficiency, as well as of inhibiting or curtailing industrial processes and their output, while the outcome may still be profitable to the owner of the capital goods. There is a large volume of capital goods whose value lies in their turning the technological inheritance to the injury of mankind. Such are, *e.g.*, naval and military establishments, together with the docks, arsenals, schools, and manu-

[1] For the connection between prices and prosperity, hard times, unemployment, etc., see The Theory of Business Enterprise, chap. vii. (pp. 185–252, especially 196–212).

[2] By "perversion" is here meant such disposition of the industrial forces as entails a net waste or detriment to the community's livelihood.

factories of arms, ammunition, and naval and military stores, that supplement and supply such establishments. These armaments and the like are, of course, public and quasi-public enterprises, under the current régime, with somewhat disputable relations to the system of current business enterprise. But it is no far-fetched interpretation to say that they are, in great part, a material equipment for the maintenance of law and order, and so enable the owners of capital goods with immunity to inhibit or pervert the industrial processes when the exigencies of business profits make it expedient; that they are, further, a means—more or less ineffectual, it is true—for extending and protecting trade, and so serve the differential advantage of business men at the cost of the community; and that they are also in large part a material equipment set apart for the diversion of a livelihood from the community at large to the military, naval, diplomatic, and other official classes. These establishments may in any case be taken as illustrating how items of material equipment may be devoted to and may be valued for the use of the technological expedients for the damage and discomfort of mankind, without sensible offset or abatement.

Typical of a class of investments which derive profits from capital goods devoted to uses that are altogether dubious, with a large presumption of net detriment, are such establishments as race-tracks, saloons, gambling-houses, and houses of prostitution.[1] Some spokesmen of

[1] Should the connection at this point with the main argument of the paper as set forth in the earlier section seem doubtful or obscure, it may be called to mind that these dubious enterprises in dissipation are cases of investment for a profit, and that the "capital goods" engaged are invested wealth yielding an income, but that they yield an income only on the fulfilment of two conditions: (*a*) the possession and employment of these capital goods enables their holder to turn to account the common stock of technological proficiency, in those bearings in which it may be of use in his enterprise; and (*b*) the limited amount of wealth available for the purpose enables their holder to "engross" the usufruct of such a fraction of the common stock of technological proficiency, in the degree determined by this limitation of the amount available. In so far, these enterprises are like any other industrial enterprise; but beyond this they have the peculiarity

the "non-Christian tribes" might wish to include churches under the same category, but the consensus of opinion in modern communities inclines to look on churches as serviceable, on the whole; and it may be as well not to attempt to assign them a specific place in the scheme of serviceable and disserviceable use of invested wealth.

There is, further, a large field of business, employing much capital goods and many technological processes, whose profits come from products in which serviceability and disserviceability are mingled with waste in the most varying proportions. Such are the production of goods of fashion, disingenuous proprietary articles, sophisticated household supplies, newspapers and advertising enterprise. In the degree in which business of this class draws its profits from wasteful practises, spurious goods, illusions and delusions, skilled mendacity, and the like, the capital goods engaged must be said to owe their capitalizable value to a perverse use of the technological expedients employed.

These wasteful or disserviceable uses of capital goods have been cited, not as implying that the technological proficiency embodied in these goods or brought into effect in their use, intrinsically has a disserviceable bearing, nor that investment in these things, and business enterprise in the management of them, need aim at disserviceability, but only to bring out certain minor points of theory, obvious but commonly overlooked: (*a*) technological proficiency is not of itself and intrinsically serviceable or disserviceable to mankind,—it is only a means of efficiency for good or ill; (*b*) the enterprising use of capital goods by their businesslike owner aims not at

that they do not, or need not, even ostensibly, turn the current knowledge and use of ways and means to "productive" account for the community at large, but simply take their stand on the (institutionally sacred) "accomplished fact" of invested wealth. They have less of the fog of apology about them than the common run of business enterprise.

serviceability to the community, but only at serviceability to the owner; (*c*) under the price system—under the rule of pecuniary standards and management—circumstances make it advisable for the business man at times to mismanage the processes of industry, in the sense that it is expedient for his pecuniary gain to inhibit, curtail, or misdirect industry, and so turn the community's technological proficiency to the community's detriment. These somewhat commonplace points of theory are of no great weight in themselves, but they are of consequence for any theory of business or of life under the rules of the price system, and they have an immediate bearing here on the question of intangible assets.

At the risk of some tedium it is necessary to the theory of intangible assets to pursue this analysis and piecing together of commonplaces somewhat farther. As has already been remarked, "assets" is a pecuniary concept, not a technological one; a concept of business, not of industry. Assets are capital, and tangible assets are items of material equipment and the like, considered as available for capitalization. The tangibility of tangible assets is a matter of the materiality of the items of wealth of which they are made up, while they are assets to the amount of their value. Capital goods, which typically make up the category of tangible assets, are capital goods by virtue of their technological serviceability, but they are capital in the measure, not of their technological serviceability, but in the measure of the income which they may yield to their owner. The like is, of course, true of intangible assets, which are likewise capital, or assets, in the measure of their income-yielding capacity. Their intangibility is a matter of the immateriality of the items of wealth—objects of ownership—of which they are made up, but their character and magnitude as assets is a matter

of the gainfulness to their owner of the processes which their ownership enables him to engross. The facts so engrossed, in the case of intangible assets, are not of a technological or industrial character; and herein lies the substantial disparity between tangible and intangible assets.

Mankind has other dealings with the material means of life, besides those covered by the community's technological proficiency. These other dealings have to do with the use, distribution, and consumption of the goods procured by the employment of the community's technological proficiency, and are carried out under working arrangements of an institutional character,—use and wont, law and custom. The principles and practise of the distribution of wealth vary with the changes in technology and with the other cultural changes that are going forward; but it is probably safe to assume that the principles of apportionment,—that is to say, the consensus of habitual opinion as to what is right and good in the distribution of the product,—these principles and the concomitant methods of carrying them out in practise have always been such as to give one person or group or class something of a settled preference above another. Something of this kind, something in the way of a conventionally arranged differential advantage in the apportionment of the common livelihood, is to be found in all cultures and communities that have been observed at all carefully; and it is perhaps needless to remark that in the higher cultures such economic preferences, privileges, prerogatives, differential advantages and disadvantages, are numerous and varied, and that they make up an intricate fabric of economic institutions. Indeed, peculiarities of class difference in some such respect are among the most striking and decisive features that distinguish one cultural era from another. In all phases of material civilization these preferential advantages are sought and valued. Classes or groups which

are in a position to make good a claim to such differential advantages commonly come, in due course, to put forward such claims; as, *e.g.*, the priesthood, the princely and ruling class, the men as contrasted with the women, the adults as against minors, the able-bodied as against the infirm. Principles (habits of thought) countenancing some form of class or personal preference in the distribution of income are to be found incorporated in the moral code of all known civilizations and embodied in some form of institution. Such items of immaterial wealth are of a differential character, in that the advantage of those who secure the preference is the disadvantage of those who do not; and it may be mentioned in passing, that such a differential advantage inuring to any one class or person commonly carries a more than equal disadvantage to some other class or person or to the community at large.[1]

When property rights fall into definite shape and the price system comes in, and more particularly when the practise of investment arises and business enterprise comes into vogue, such differential advantages take on something of the character of intangible assets. They come to have a pecuniary value and rating, whether they are transferable or not; and if they are transferable, if they can be sold and delivered, they become assets in a fairly clear and full sense of that term. Such immaterial wealth, preferential benefits of the nature of intangible assets, may be a matter of usage simply, as the vogue of a given public house, or of a given tradesman, or of a given brand of consumable goods; or may be a matter of arrogation, as the King's Customs in early times, or

[1] This statement may not seem clear without indicating in a more concrete manner some terms in which to measure the relative differential advantage and disadvantage which so emerge in such a case of prerogative or privilege. Where, as in the earlier, non-pecuniary phases of culture, no price test is applicable, the statement in the text may be taken to mean that the differential disadvantage at the cost of which the differential benefit in question is gained is greater than the beneficiary would be willing to undergo in order to procure this benefit.

the once notorious Sound Dues, or the closing of public highways by large land-owners; or of contractual concession, as the freedom of a city or a gild, or a franchise in the Hanseatic League or in the Associated Press; or of government concession, whether on the basis of a bargain or otherwise, as the many trade monopolies of early modern times, or a corporation charter, or a railway franchise, or letters of marque, or letters patent; or of statutory creation, as trade protection by import, export, or excise duties or navigation laws; or of conventionalized superstitious punctilio, as the creation of a demand for wax by the devoutly obligatory consumption of consecrated tapers, or the similar devout consumption of and demand for fish during Lent.

Under the régime of investment and business enterprise these and the like differential benefits may turn to the business advantage of a given class, group, or concern, and in such an event the resulting differential business advantage in the pursuit of gain becomes an asset, capitalized on the basis of its income-yielding capacity, and possibly vendible under the cover of a corporation security (as, *e.g.*, common stock), or even under the usual form of private sale (as, *e.g.*, the appraised good-will of a business concern).

But the régime of business enterprise has not only taken over various forms of institutional privileges and prerogatives out of the past: it also gives rise to new kinds of differential advantage and capitalizes them into intangible assets. These are all (or virtually all) of one kind, in that their common aim and common basis of value and capitalization is a preferentially advantageous sale. Naturally so, since the end of all business endeavor, in the last analysis, is an advantageous sale. The commonest and typical kind of such intangible assets is "good-will," so called,—a term which has come to cover a great variety

of differential business advantages, but which in the original business usage of it meant the customary resort of a clientèle to the concern so possessed of the good-will. It seems originally to have implied a kindly sentiment of trust and esteem on the part of a customer, but as the term is now used it has lost this sentimental content. In the broad and loose sense in which it is now currently employed it is extended to cover such special advantages as inure to a monopoly or a combination of business concerns through its power to limit or engross the supply of a given line of goods or services. So long as such a special advantage is not specifically protected by special legislation or by a due legal instrument,—as in the case of a franchise or a patent right,—it is likely to be spoken of loosely as "good-will."

The results of the analysis may be summed up to show the degree of coincidence and the distinctions between the two categories of assets: (*a*) the value (that is to say, the amount) of given assets, whether tangible or intangible, is the capitalized (or capitalizable) value of the given articles of wealth, rated on the basis of their income-yielding capacity to their owner; (*b*) in the case of tangible assets there is a presumption that the objects of wealth involved have some (at least potential) serviceability at large, since they serve a materially productive work, and there is therefore a presumption, more or less well founded, that their value represents, tho it by no means measures, an item of serviceability at large; (*c*) in the case of intangible assets there is no presumption that the objects of wealth involved have any serviceability at large, since they serve no materially productive work, but only a differential advantage to the owner in the distribution of the industrial product;[1] (*d*) given tangible assets may

[1] A doubt has been offered as to the applicability of this characterization to such intangible assets as a patent right and other items of the same class. The

be disserviceable to the community,—a given material equipment may owe its value as capital to a disserviceable use, tho in the aggregate or on an average the body of tangible assets are (presumptively) serviceable; (*e*) given intangible assets may be indifferent in respect of serviceability at large, tho in the aggregate, or on an average, intangible assets are (presumably) disserviceable to the community.

On this showing it would appear that the substantial difference between tangible and intangible assets lies in the different character of the immaterial facts which are turned to pecuniary account in the one case and in the other. The former, in effect, capitalize such fraction of the technological proficiency of the community as the ownership of the capital goods involved enables the owner to engross. The latter capitalize such habits of life, of a non-technological character,—settled by usage, convention, arrogation, legislative action, or what not,—as will effect a differential advantage to the concern to which the assets in question appertain. The former owe their existence and magnitude to the usufruct of technological expedients involved in the industrial process proper; while the latter are in like manner due to the usufruct of what may be called the interstitial correlations and ad-

doubt seems to arise from a misapprehension of the analysis and of its intention. It should be remarked that there is no intention to condemn or disapprove any of the items here spoken of as intangible assets. The patent right may be justifiable or it may not: there is no call to discuss that question here. Other intangible assets are in the same case in this respect.

Further, as to the character of a patent right considered as an asset. The invention or innovation covered by the patent right is a contribution to the common stock of technological proficiency. It may be (immediately) serviceable to the community at large, or it may not;—*e.g.*, a cash register, a bank-check punch, a street-car fare register, a burglar-proof safe, and the like are of no immediate service to the community at large, but serve only a pecuniary use to their users. But, whether the innovation is useful or not, the patent right, as an asset, has no (immediate) usefulness at large, since its essence is the restriction of the usufruct of the innovation to the patentee. Immediately and directly the patent right must be considered a detriment to the community at large, since its purport is to prevent the community from making use of the patented innovation, whatever may be its ulterior beneficial effects or its ethical justification.

justments both within the industrial system and between industry proper and the market, in so far as these relations are of a pecuniary rather than a technological character. Much the same distinction may be put in other words, so as to bring the expression nearer the current popular apprehension of the matter, by saying that tangible assets, commonly so called, capitalize the processes of production, while intangible assets, so called, capitalize certain expedients and processes of acquisition, not productive of wealth, but affecting only its distribution. Formulated in either way, the distinction seems not to be an altogether hard-and-fast one, as will immediately appear if it is called to mind that intangible assets may be converted into tangible assets, and conversely, as the exigencies of business may decide. Yet, while the two categories of assets stand in such close relation to one another as this state of things presumes, it is still evident from the same state of things that they are not to be confounded with one another.

Taking "good-will" as typical of the category of "intangible assets," as being the most widely prevalent and at the same time the farthest removed in its characteristics from the range of "tangible assets," some slight further discussion of it may serve to bring out the difference between the two categories of assets and at the same time to enforce their essential congruity as assets as well as the substantial connection between them. In the earlier days of the concept, in the period of growth to which it owes its name, when good-will was coming into recognition as a factor affecting assets, it was apparently looked on habitually as an adventitious differential advantage accruing spontaneously to the business concern to which it appertained; an immaterial by-product of the concern's conduct of business,—commonly presumed to be an adventitious blessing incident to an upright and

humane course of business life. Poor Richard would express this sense of the matter in the saying that "honesty is the best policy." But presently, no doubt, some thought would be taken of the acquirement of good-will, and some effort would be expended by the wise business man in that behalf. Goods would be given a more elegant finish for the sake of a readier sale, beyond what would conduce to their brute serviceability simply; smooth-spoken and obsequious salesmen and solicitors, gifted with a tactful effrontery, have come to be preferred to others, who, without these merits, may be possessed of all the diligence, dexterity, and muscular force required in their trade; something is expended on convincing, not to say vain-glorious, show-windows that shall promise something more than one would like to commit one's self to in words; itinerant agents, and the like, are employed at some expense to secure a clientèle; much thought and substance is spent on advertising of many kinds.

This last-named item may be taken as typical of the present stage of growth in the production or generation of good-will, and therefore in the creation of intangible assets. Advertising has come to be an important branch of business enterprise by itself, and it employs a large and varied array of material appliances and processes (tangible assets). Investment is made in certain material items (productive goods), such as printed matter, sign-boards, and the like, with a view to creating a certain body of good-will. The precise magnitude of the product may not be foreseen, but, if sagaciously made, such investment rarely fails of the effect aimed at—unless a business rival with even greater sagacity should outmanœuvre and offset these endeavors with a superior array of appliances (productive goods) and workmen for the generation of good-will. The product aimed at, commonly with effect, is good-will,—an intangible asset,—which

may be considered to have been generated by converting certain tangible assets into this intangible; or it may be considered as an industrial product, the output of certain industrial processes in which the given items of material equipment are employed and give effect to the requisite technological proficiency. Whichever view be taken of the causal relation between the material equipment and processes employed, on the one hand, and the output of good-will, on the other hand, the result is substantially the same for the purpose in hand.

The ulterior end of the advertising is, it may be said, the sale of an increased quantity of the advertised articles, at an increased net gain; which would mean an increased value of the material items offered for sale; which, in turn, is the same as saying an increase of tangible assets. It may be assumed without debate that the end of business endeavor is a gain in final terms of tangible values. But this ulterior end is, in the case of advertising enterprise, to be gained only by the intermediate step of a production of an immaterial item of good-will, an intangible asset.

So the case in illustration shows not only the conversion of tangible assets (material capital goods, such as printed matter) into intangible wealth, or, if that formula be preferred, the production of immaterial wealth by the productive use of material wealth, but also, conversely, in the second step of the process, it shows the conversion of intangible assets into tangible wealth (enhanced value of vendible goods), or, if the expression seems preferable, the production of tangible assets by the use of intangible wealth.

This creation of tangible wealth out of intangible assets is seen perhaps at its neatest in the enhancement of land values by the endeavors of interested parties. Real estate is, of course, a tangible asset of the most authentic tangibility, and it is an asset to the amount of its value, which is determined, say, by the figures at which the real estate

in question is currently bought and sold. This is the current value of the real estate, and therefore its current actual magnitude as a tangible asset. The value of the real estate might also be computed by capitalizing its rental value; but, where the current market value does not coincide with the capitalized rental value, the former must, according to business conceptions, be accepted as the actual value. In many parts of this country, perhaps in most, but particularly in the Western States and in the neighborhood of flourishing towns, these two methods of rating the pecuniary magnitude of real estate will habitually not coincide. Due allowance, often very considerable, being made, the capitalized rental value of the land may be taken as measuring its current serviceability as an item of material equipment; while the amount by which the market value of the land exceeds its capitalized rental value may be taken as the product, the tangible residue, of an intangible asset of the nature of good-will, turned to account, or "productively employed," in behalf of this parcel of land.[1]

Some of the lands of California may be taken as a very good, tho perhaps not an extreme, example of such a creation of real estate by spiritual instrumentalities. It is probably well within the mark to say that some of these lands owe not more than one-half their current market value to their current serviceability as an instrument of production or use. The excess may be attributable to illusions touching the chances of future sale, to anticipation of a prospective enhanced usefulness, and the like; but all these are immaterial factors, of the nature of good-

[1] Neither as a physical magnitude ("land") nor as a pecuniary magnitude ("real estate") is the capitalised land in question an item of "good-will"; but its value as real estate—i.e., its magnitude as an asset—is in part a product of the "good-will" (illusions and the like) worked up in its behalf and turned to account, by the land agent. The real estate is a tangible asset, an item of material wealth, while the "good-will" to which in part it owes its magnitude as an item of wealth is an intangible asset, an item of immaterial wealth.

will. Like other assets, these lands are capitalized on the basis of the anticipated income from them, part of which income is anticipated from profitable sales to persons who, it is hoped, will be persuaded to take a very sanguine view of the land situation, while part of it may be due to over-sanguine anticipations of usefulness generated by the advertising matter and the efforts of the land agents directed to what is called "developing the country."

To any one preoccupied with the conceit that "capital" means "capital goods" such a conversion of intangible into tangible goods, or such a generation of intangible assets by the productive use of tangible assets, might be something of a puzzle. If "assets" were a physical concept, covering a range of physical things, instead of a pecuniary concept, such conversion of tangible into intangible assets, and conversely, would be a case of transubstantiation. But there is nothing miraculous in the matter. "Assets" are a pecuniary magnitude, and belong among the facts of investment. Except in relation to investment the items of wealth involved are not assets. In other words, assets are a matter of capitalization, which is a special case of valuation; and the question of tangibility or intangibility as regards a given parcel of assets is a question what article or class of articles the valuation shall attach to or be imputed to. If, *e.g.*, the fact to which value is imputed in the valuation is the habitual demand for a given article of merchandise, or the habitual resort of a given group of customers to a particular shop or merchant, or a monopolistic control or limitation of price and supply, then the resulting item of assets will be "intangible," since the object to which the capitalized value in question is imputed is an immaterial object. If the fact which is by imputation made the bearer of the capitalized value is a material object, as, *e.g.*, the merchantable goods of which the supply is arbitrarily limited or the price arbitrarily fixed,

or if it is the material means of supplying such goods, then the capitalized value in question is a case of tangible assets. The value involved is, like all value, a matter of imputation, and as assets it is a matter of capitalization; but capitalization is an appraisement of a pecuniary "income-stream" in terms of the vendible objects to the ownership of which the income is assumed to inure. To what object the capitalized value of the "income-stream" shall be imputed is a question of what object of ownership secures to the owner an effectual claim on this "income-stream"; that is to say, it is a question of what object of ownership the strategic advantage is assumed to attach to, which is a question of the play of business exigencies in the given case.

The "income-stream" in question is a pecuniary income stream, and is in the last resort traceable to transactions of sale. Within the confines of business—and therefore within the scope of capital, investments, assets, and the like business concepts—transactions of purchase and sale are the final terms of any analysis. But beyond these confines, comprehending and conditioning the business system, lie the material facts of the community's work and livelihood. In the final transaction of sale the merchantable goods are valued by the consumer, not as assets, but as livelihood;[1] and in the last analysis and long run it is to some such transaction that all business imputations of value and capitalistic appraisement of assets must have regard and by which they must finally be checked. Dissociated from the facts of work and livelihood, therefore, assets cease to be assets; but this does not preclude their relation to these facts of work and livelihood being at times somewhat remote and loose.

[1] "Livelihood" is, of course, here taken in a loose sense, not as denoting the means of subsistence simply or even the means of physical comfort, but as signifying that the purchases in question are made with a view to the consumptive use of the goods rather than with a view to their use for a profit.

Without recourse, immediately or remotely, to certain material facts of industrial process and equipment, assets would not yield earnings; that is to say, wholly disjoined from these material facts, they would in effect not be assets. This is true for both tangible and intangible assets, altho the relation of the assets to the material facts of industry is not the same in the two cases. The case of tangible assets needs no argument. Intangible assets, such as patent right or monopolistic control, are likewise of no effect except in effectual contact with industrial facts. The patent right becomes effective for the purpose only in the material working of the innovation covered by it; and monopolistic control is a source of gain only in so far as it effectually modifies or divides the supply of goods.

In the light of these considerations it seems feasible to indicate both the congruence and the distinction between the two categories of assets a little more narrowly than was done above. Both are assets,—that is to say, both are values determined by a capitalization of anticipated income-yielding capacity; both depend for their income-yielding capacity on the preferential use of certain immaterial factors; both depend for their efficiency on the use of certain material objects; both may increase or decrease, as assets, apart from any increase or decrease of the material objects involved. The tangible assets capitalize the preferential use of technological, industrial expedients,—expedients of production, dealing with the facts of brute nature under the laws of physical cause and effect,—this preferential use being secured by the ownership of material articles employed in the processes in which these expedients are put into effect. The intangible assets capitalize the preferential use of certain facts of human nature—habits, propensities, beliefs, aspirations, necessities—to be dealt with under the psychological laws of human motivation; this preferential use being secured by

custom, as in the case of old-fashioned good-will, by legal assignment, as in patent or copyright, by ownership of the instruments of production, as in the case of industrial monopolies.[1]

Intangible assets are capital as well as tangible assets; that is to say, they are items of capitalized wealth. Both categories of assets, therefore, represent expected "income-streams" which are of such definite character as to admit of their being rated in set terms per cent. per time unit; altho the expected income need not therefore be anticipated to come in an even flow or to be distributed in any equable manner over a period of time. The income-streams to be so rated and capitalized are associated in such a manner with some external fact (impersonal to their claimant), whether material or immaterial, as to permit their being traced or attributed to an income-yielding capacity on the part of this external fact, to which their valuation as a whole may be imputed and which may then be capitalized as an item of wealth yielding this income-stream. Income-streams which do not meet these requirements do not give rise to assets, and so do not swell the volume of capitalized wealth.

There are income-streams which do not meet the necessary specifications of capitalizable wealth; and in modern business traffic, particularly, there are large and secure sources of income that are in this way not capitalizable and yet yield a legitimate business income. Such are, indeed, to be rated among the most consequential factors in the current business situation. Under the guidance of traditions carried over from a more primitive business

[1] The instruments of production so monopolized are, of course, tangible assets, but the ownership of such means of production in amount sufficient to enable the owner to monopolize or control the market, whether for purchase (as of materials or labor) or for sale (as of marketable goods or services), gives rise to a differential business advantage which is to be classed as intangible assets.

situation, it has been usual to speak of income-streams derived in such a manner as "wages of superintendence," or "undertaker's wages," or "entrepreneur's profits," or, latterly, as "profits" simply and specifically. Such phenomena of this class as are of consequence in business are commonly accounted for, theoretically, under this head; and the effort so to account for them is to be taken as, at least, a laudable endeavor to avoid an undue multiplication of technical terms and categories.[1] Yet the most striking phenomena of this class, and the most consequential for modern business and industry, both in respect of their magnitude and in respect of the pecuniary dominion and discretion which they represent, cannot well be accounted undertaker's gains, in the ordinary sense of that term. The great gains of the great industrial financiers or of the great "interests," *e.g.*, do not answer the description of undertaker's gains, in that they do not accrue to the captain of industry on the basis of his "managerial ability" alone, apart from his wealth or out of relation to his wealth; and yet it is not safe to say that such gains (which are over and above ordinary returns on his investments) accrue on the ground of the requisite amount of wealth alone, apart from the exercise of a large business discretion on the part of the owner of such wealth or on the part of his agent to whom discretion has been delegated. Administrative, or strategic, discretion and activity must necessarily be present in the case: otherwise, the income in question would rightly be rated as income from capital simply.

The captain of industry, the pecuniary magnate, is normally in receipt of income in excess of the ordinary

[1] One writer even goes so far in the endeavor to bring the facts within the scope of the staple concepts of theory at this point as to rate the persons concerned in such a case as "capital," after having satisfied himself that such income-streams are traceable to a personal source.—See Fisher, Nature of Capital and Income, chap. v.

rate per cent. on investment; but apart from his large holdings he is not in a position to get these large gains. Dissociated from his large holdings, he is not a large captain of industry; but it is not the size of his holdings alone that determines what the gains of the pecuniary magnate in modern industry shall be. Gains of the kind and magnitude that currently come to this class of business men come only on condition that the owner (or his agent) shall exercise a similarly large discretion and control in the affairs of the business community; but the magnitude of the gains, as well as of the discretion and control exercised, is somewhat definitely conditioned by the magnitude of the wealth which gives effect to this discretion.

The disposition of pecuniary forces in such matters may be well seen in the work and remuneration of any coalition of "interests," such as the modern business community has become familiar with. The "interests" in such a case are of a personal character,—they are "interested parties,"—and the sagacity, experience, and animus of these various interested parties counts in the outcome, both as regards the aggregate gains of the coalition and as regards the distribution of these gains among the several parties in interest; but the weight of any given "interest" in a coalition or "system" is more nearly proportioned to the wealth controlled by the given "interest," and to the strategic position of such wealth, than to any personal talents or proficiency of the "interested party." The talents and proficiency involved are not the main facts. Indeed, the movements of such a "system," and of the several component "interests," are largely a matter of artless routine, in which the greatest ingenuity and initiative engaged in the premises are commonly exercised by the legal counsel working for a fee.

A dispassionate student of the current business traffic, who is not overawed by round numbers, will be more im-

pressed by the ease and simplicity of the manœuvres that lead to large pecuniary results in the higher business finance than by any evidence of pre-eminent sagacity and initiative among the pecuniary magnates. One need only call to mind the simple and obvious way in which the promoters of the Steel Corporation were magnificently checkmated by the financiers of the Carnegie "interest," when that great and reluctant corporation was floated, or the pettyfogging tactics of Standard Oil in its later career. In extenuation of their visible lack of initiative and insight it may not be ungraceful to call to mind that many of the discretionary heads of the great "interests" are men of advanced years, and that in the nature of the case the pecuniary magnates of the present generation must commonly be men of a somewhat advanced age; and it is only during the present generation that the existing situation has arisen, with its characteristic opportunities and demands. To take their present foremost rank in the new business finance which is here under inquiry, they have had to accumulate the great wealth on which alone their discretionary control of business affairs rests, and their best vigor has been spent in this work of preparation; so that they have commonly attained the requisite strategic position only after they had outlived their "years of discretion."

But there is no intention here to depreciate the work of the pecuniary magnates or the spokesmen of the great "interests." The matter has been referred to only as it bears on this category of capitalistic income which accrues on other ground than the "earning-capacity" of the assets involved, and which still cannot be imputed to the "earning-capacity" of these business men apart from these assets. The case is evidently not one of "wages of superintendence" or "undertaker's profits"; but it is as evidently not a case of the earning-capacity of the

assets. The proof of the latter point is quite as easy as of the former. If the gains of the "system" or of its constituent "interests" and magnates were imputable to the earning-capacity of the assets involved,—in any accepted sense of "earnings,"—then it would immediately follow that these assets would be recapitalized on the basis of these extraordinary earnings, and that the income derived in this class of traffic should reappear as interest or dividends on the capital so increased to correspond with the increased earnings. But such recapitalization takes place only to a relatively very limited extent, and the question then bears on the income which is not so accounted for in the recapitalization.

The gains of this class of traffic are, of course, themselves capitalized,—for the most part they accrue in the capitalized form, as issues of securities and the like; but the sources of this income are not capitalized as such. The (large) accumulated wealth, or assets, which gives weight to the movements of the "interests" and magnates in question, and which affords the ground for the discretionary control of business affairs exercised by them, are, for the most part at least, invested in ordinary business ventures, in the form of corporation securities and the like, and are there earning dividends or interest at current rates; and these assets are valued in the market (and thereby capitalized) on the basis of their current earnings in the various enterprises in which they are so invested. But their being so invested in profitable business enterprises does not in the least hinder their usefulness in the hands of the magnates as a basis or means of carrying on the large and highly profitable transactions of the higher industrial finance. To impute these gains to these assets as "earnings," therefore, would be to count the assets twice as capital, or rather to count them over and over.

An additional perplexity in endeavoring to handle gains of this class theoretically as earnings, in the ordinary sense, arises from the fact that they stand in no definable time relation to their underlying assets. They have no definable "time-shape," as Mr. Fisher might put it.[1] Such gains are timeless, in the sense that the time relation does not count in any substantial manner or in any sensible degree in their determination.[2]

In a more painstaking statement of this point of theory it would be necessary to note that these gains are "timeless," in the sense indicated, in so far as the enterprise from which they accrue is dissociated from the technological circumstances and processes of industry, and only in so far. Technological (industrial) procedure, being of the nature of physical causation, is subject to the time relation under which causal sequence runs. This is the basis of such discussions of capital and interest as those of Böhm-Bawerk, and of Fisher. But business traffic, as distinguished from the processes of industry, being not immediately concerned with the technological process, is also not immediately or uniformly subject to the time relation involved in the causal sequence of the technological process. Business traffic is subject to the time relation because and in so far as it depends upon and follows up the processes of production. The commonplace or old-fashioned business enterprise, the competitive system of investment in industrial business simply, commonly rests pretty directly on the due sequence of the industrial processes in which the investments of such enterprise are placed. Such enterprise, as conceived by the current theories of capital, does business at first hand

[1] *Cf.* Fisher, Rate of Interest, chap. vi.

[2] This conclusion is reached, *e.g.*, by Mr. G. P. Watkins (The Growth of Large Fortunes, chap. iii., sec. 10), altho through a curious etymological misapprehension he rejects the term "timeless" as not available.

in the industrial efficiency of the community, which is conditioned by the time relation of the causal sequence, and which is, indeed, in great measure a function of the time consumed in the technological processes. Therefore, the gains, as well as the transactions, of such enterprise are also commonly somewhat closely conditioned by the like time relation, and they typically emerge under the form of a per cent. per time unit; that is to say, as a function of the lapse of time. Yet the business transactions themselves are not a matter of the lapse of time. Time is not of the essence of the case. The magnitude of a pecuniary transaction is not a function of the time consumed in concluding it, nor are the gains which accrue from the transaction. In business enterprise on the higher plane, which is here under inquiry, the relation of the transactions, and of their gains, to the consecution of the technological processes remotely underlying them is distant, loose, and uncertain, so that the time element here does not obtrude itself: rather, it somewhat obviously falls into abeyance, marking the degree of its remoteness. Yet this phase of business enterprise, like any other, of course takes place in time; and, it is also to be remarked, the volume of the traffic and the gains derived from it are, no doubt, somewhat closely conditioned in the long run by the time relation which dominates that technological (industrial) efficiency on which this enterprise, too, ultimately and indirectly rests and from which in the last resort its gains are finally drawn, however remotely and indirectly.

An analysis of these phenomena on lines similar to those which have been followed in the discussion of assets above is not without difficulty, nor can it fairly be expected to yield any but tentative and provisional results. The matter has received so little attention from economic theoreticians that even significant mistakes in this con-

nection are of very rare occurrence.[1] The cause of this scant attention to these matters lies, no doubt, in the relative novelty of the facts in question. The facts may be roughly drawn together under the caption "Traffic in Vendible Capital"; altho that term serves rather as a comprehensive designation of the class of business enterprise from which these gains accrue than as an adequate characterization of the play of forces involved.[2] Traffic in vendible capital has not been unknown in the past, but it is only recently that it has come into the foreground as the most important line of business enterprise. Such it now is, in that it is in this traffic that the ultimate initiative and discretion in business are now to be found. It is at the same time the most gainful of business enterprise, not only in absolute terms, but relatively to the magnitude of the assets involved as well. One reason for this superior gainfulness is the fact that the assets involved in this traffic are at the same time engaged as assets to their full extent in ordinary business, so that the peculiar gains of this traffic are of the nature of a bonus above the earnings of the invested wealth. "It is like finding money."

As was said above, the method, or the ways and means, characteristic of this superior business enterprise is a traffic in vendible capital. The wealth gained in this field is commonly in the capitalized form, and constitutes in each transaction, or "deal," a deduction or abstraction from the capitalized wealth of the business community in favor of the magnates or "interests" to whom the gains accrue. Its proximate aim is a transfer of capital-

[1] Even Mr. Watkins (as cited above), *e.g.*, is led by a superficial generalization to class these gains as "speculative," and so to excuse himself from a closer acquaintance with their character and with the bearings of the class of business enterprise out of which they arise.

[2] *Cf.* Theory of Business Enterprise, chap. v. pp. 119–130; chap. vi. pp. 162–174.

ized wealth from other capitalists to those who so gain. This transfer or abstraction of capitalized wealth from the former owners is commonly effected by an augmentation of the nominal capital, based on a (transient) advantage inuring to the particular concerns whose capitalization is so augmented.[1] Any such increase of the community's aggregate capitalization, without a corresponding increase of the material wealth on which the capitalization is based, involves, of course, in effect a redistribution of the aggregate capitalized wealth; and in this redistribution the great financiers are in a position to gain. The gains in question, it will be seen, come out of the business community, out of invested wealth, and only remotely and indirectly out of the community at large from which the business community draws its income. These gains, therefore, are a tax on commonplace business enterprise, in much the same manner and with much the like effect as the gains of commonplace business (ordinary profits and interest) are a tax on industry.[2]

In a manner analogous to the old-fashioned capitalist-employer's engrossing of the industrial community's technological efficiency does the modern pecuniary magnate engross the business community's capitalistic efficiency. This capitalistic efficiency lies in the capitalist-employer's ability—by force of the ownership of the material equipment—to induce the industrial community, through suitable bargaining, to turn over to the owner of the material equipment the excess of the product above the industrial

[1] *Cf.* Theory of Business Enterprise, footnote on pp. 169–170.

[2] As should be evident from the run of the argument in the earlier portions of this paper, the use of the words "tax," "deduction," "abstraction," in this connection, is not to be taken as implying approval or disapproval of the phenomena so characterized. The words are used for want of better terms to indicate the source of business gains, and objectively to characterize the relation of give-and-take between industry and ordinary capitalistic business, on the one hand, and between ordinary business and this business enterprise on the higher plane, on the other hand.

community's livelihood. The fortunes of the capitalist-employer are closely dependent on the run of the market, —the conjunctures of advantageous purchase and sale; and it is his constant endeavor to create or gain for himself some peculiar degree of advantage in the market, in the way of monopoly, good-will, legalized privilege, and the like,—something in the way of intangible assets. But the pecuniary magnate, in the measure in which he truly answers to the concept, is superior to the market on which the capitalist-employer depends, and can make or mar its conjunctures of advantageous purchase and sale of goods; that is to say, he is in a position to make or mar any peculiar advantage possessed by the given capitalist-employer who comes in his way. He does this by force of his large holdings of capital at large, the weight of which he can shift from one point of investment to another as the relative efficiency—earning-capacity—of one and another line of investment may make it expedient; and at each move of this kind, in so far as it is effective for his ends, he cuts into and assimilates a fraction of the invested wealth involved, in that he cuts into and sequesters a fraction of the capital's earning-capacity in the given line. That is to say, in the measure in which he is a pecuniary magnate, and not simply a capitalist-employer, he engrosses the capitalistic efficiency of invested wealth; he turns to his own account the capitalist-employer's effectual engrossing of the community's industrial efficiency. He engrosses the community's pecuniary initiative and proficiency. In the measure, therefore, in which this relatively new-found serviceability of extraordinarily large wealth is effective for its peculiar business function, the old-fashioned capitalist-employer loses his discretionary initiative and becomes a mediator, an instrumentality of extraction and transmission, a collector and conveyer of revenue from the community at large to the pecuniary

magnate, who, in the ideal case, should leave him only such an allowance out of the gross earnings collected and transmitted as will induce him to continue in business.

To the community at large, whose industrial efficiency is already virtually engrossed by the capitalist-employer's ownership and control of the material equipment, this later step in the evolution of the economic situation should apparently not be a matter of substantial consequence or a matter for sentimental disturbance. On the face of it, it should appear to have little more than a speculative interest for those classes of the community who do not derive an income from investments; particularly not for the working classes, who own nothing to speak of and whose only dependence is their technological efficiency, which has virtually ceased to be their own. But such is not the current state of sentiment. This inchoate new phase of capitalism, this business enterprise on the higher plane, is in fact viewed with the most lively apprehension. In a maze of consternation and solicitude the boldest, wisest, most public-spirited, most illustrious gentlemen of our time are spending their manhood in an endeavor to make the hen continue sitting on the nest after the chickens are out of the shell. The modern community is imbued with business principles—of the old dispensation. By precept and example, men have learned that the business interests (of the authentic superannuated scale and kind) are the palladium of our civilization, as Mr. Dooley would say; and it is felt that any disturbance of the existing pecuniary dominion of the capitalist-employer —as contrasted with the pecuniary magnate—would involve the well-being of the community in one common agony of desolation.

The merits of this perturbation, or of the remedies proposed for saving the pecuniary life of the old-fashioned capitalist-employer, of course do not concern the present

inquiry; but the matter has been referred to here as evidence that the pecuniary magnate's work, and the dominion which his extraordinarily large wealth gives him, are, in effect, substantially a new phase of the economic development, and that these phenomena are distastefully unfamiliar and are felt to be consequential enough to threaten the received institutional structure. That is to say, it is felt to be a new phase of business enterprise, —distasteful to those who stand to lose by it.

The basis of this business enterprise on the higher plane is capital-at-large, as distinguished from capital invested in a given line of industrial enterprise, and it becomes effective when wealth has accumulated in holdings sufficiently large to give the holder (or combination of holders, the "system") a controlling weight in any group or ramification of business interests into which he may throw his weight by judicious investment (or by underwriting and the like). The pecuniary magnate must be able effectually to engross the pecuniary initiative and the business opportunities on which such a section or ramification of the business community depends for its ordinary gains. How large a proportion of the business community's capital is needed for such an effectual engrossing of its capitalistic efficiency, in any given bearing, is a question that cannot be answered in anything like absolute terms, or even in relative terms of a satisfactorily definite kind. It is, of course, evident that a relatively large disposable body of capital is needed for such a purpose; and it is also evident, from the current facts of business, that the body of capital so disposed of need not amount to a majority, or anything near a majority, of the investments involved, —at least not at the present relatively inchoate phase of this larger business enterprise. The larger the holdings of the magnate, the more effectual and expeditious will be his work of absorbing the holdings of the smaller

capitalist-employer, and the more precipitately will the latter yield his assets to the new claimant.

Evidently, this work of the pecuniary magnate bears a great resemblance to the creation of intangible assets under the ordinary competitive system. This is, no doubt, the point of its nearest relation to the current capitalistic enterprise. But, as has already been indicated above, it cannot be said that the magnate's peculiar work is the creation of intangible, or other assets, altho there is commonly some recapitalization involved in his manœuvres, and altho his gains commonly come as assets, *i.e.*, in the capitalized form. Nor can it, as has also been indicated above, be said that the wealth which serves him as the means of his peculiar enterprise stands in the relation of assets to this enterprise or to the gains in question, since this wealth already stands in an exhaustive relation as assets to some corporate enterprise in ordinary business and to the corresponding items of interest and dividends. It may, of course, be contended that the present state of things on this higher plane of enterprise is transient and transitional only, and that in the settled condition which may conceivably supervene the magnate's relation to business at large will be capitalized in some form of intangible assets, after the manner in which the monopoly advantage of an ordinary "trust" is now capitalized. But this is at the best only a surmise, guided by inapplicable generalizations drawn from a past situation in which this higher enterprise has not engrossed the pecuniary initiative and played the ruling part.

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TWO EXPERIMENTS IN PUBLIC OWNERSHIP OF STEAM RAILROADS.

SUMMARY.

Troy financed the construction of Schenectady & Troy Railroad when individuals withheld support, 138.—City owned all stock and operated road for ten years, 141.—A losing venture, hampered by legislation and lack of friendly connections, 142.—Mismanaged by political appointees, but must have failed under any management, 145.—North Brookfield, unable to obtain rail connection with a trunk line, built North Brookfield Railroad by means of company in which it took nine-tenths of stock, but arranged for operation by Boston & Albany under lease, 149. —A success in every particular, 150.

WHEN the subject of municipal ownership is considered of sufficient importance to warrant an investigation of European practice by a commission of American experts, it is well to know the results of similar experiments in this country. The Cincinnati Southern Railway is commonly referred to as the only one in the United States which was built by a municipality, but at a time when Cincinnati was still hopeful of the success of the Louisville, Cincinnati, and Charleston project, the city of Troy was attempting to tap the stream of Western trade through the construction of the Schenectady & Troy Railroad. And the Massachusetts town of North Brookfield, fearful of the stagnation liable to result from location near, but not on, a trunk line, had finished the building of the North Brookfield Railroad at a time when the Cincinnati Southern was little more than a promoter's dream.

Troy and Albany have always been commercial rivals. Before the opening of the Erie and Champlain Canals they had shared equally in the trade of the territory immediately about them, but with the advantage of situation Troy gained rapidly when those waterways brought within range of easy communication the markets of northern and western New York and southern Vermont. The merchants of Albany thereupon sought from the legislature a charter for a railroad to connect their city with Schenectady. Ostensibly to compensate them for the risk attaching to

the venture, they asked for the exclusive right to construct such a line between the Hudson and Mohawk Rivers. This was in February, 1826, less than six months after the opening of the Erie Canal.

News of this project was received with indifference at Troy, where grave doubts were expressed as to the practicability of a railroad in a country exposed to great extremes of temperature; but some interest was shown in the monopoly feature of the petition. "The privilege of the contemplated company, if it should be granted, should not be *exclusive*," said the local editor. "If the Rail-Road *should supercede* the canal between Schenectady and the Hudson, it might take such a direction as to produce serious injury to the trade of Troy."[1] Within a month after receiving the Albany petition, the legislature was also asked to grant a charter for a railroad between Schenectady and Troy.[2] The subscriber, John L. Sullivan of New York, represented that he was the agent of one Henry Sargent, inventor of an "elevated single rail and carriage," which he proposed should be operated as a supplement to the Erie Canal in the interest of Troy. Feasible or not, this plan afforded Troy an opportunity to oppose the monopoly feature of the Albany project. The Mohawk & Hudson charter was finally granted, but without conferring any exclusive privilege.[3] Shorn of its monopoly feature, the act had no terrors for Troy, and the enthusiasm over the Sullivan project suddenly subsided.[4] The counter-petition had served its purpose, and there was now no further reason for pressing the matter in the legislature or in the columns of the Sentinel.

[1] Troy Sentinel, March 3, 1826.

[2] Assembly Journal, 1826, 827. A copy of this petition appears in the Sentinel of April 4.

[3] Laws of 1826, Chap. 253.

[4] The details of this plan appear in a pamphlet, "Suggestion of a Plan of Uniting Roads with Railways to facilitate and extend the Internal Commerce of New York" (1827). There were, in fact, to be two rails, "nearly one foot apart," and resting on the tops of posts cut to overcome the inequalities of the ground. The carriage was to be suspended upon this structure after the manner of a pack-saddle, with the load on either side of the rails.

John Langdon Sullivan was a son of James Sullivan, leader in the Middlesex Canal project and governor of Massachusetts. He was a civil engineer.

When the Mohawk & Hudson Railroad was completed in 1831, a branch line was built from Schenectady to Saratoga to divert the trade of northern New York from Troy to Albany. The merchants of Troy thereupon appeared before the legislature, and obtained a charter for a railroad from Troy to Ballston Spa, on the line of the Schenectady & Saratoga. In 1835 the Rensselaer & Saratoga Railroad was opened over this route, but when its managers attempted to enter into an agreement with the Schenectady & Saratoga for exchange of freight and sale of through tickets, they met with a rebuff. It soon afterwards became known that a controlling interest in the Schenectady & Saratoga had come into the hands of a New York broker. The president of the Rensselaer & Saratoga, Richard P. Hart, associated several other Troy capitalists with him, and purchased control of the property. At about this time Troy capital also began to find its way into the Utica & Schenectady railroad in the belief that it could be extended eastward to Troy. This the Albany stockholders, supported by New York capitalists, were able to prevent. The result was the incorporation of the Schenectady & Troy Railroad Company, with a capital of $500,000, May 21, 1836.[1]

At the time this project was first proposed it was confidently believed that it would be an easy matter to obtain the active support of the moneyed men of Troy. The commissioners found, however, that they were unable to obtain sufficient subscriptions to insure the charter against forfeiture. It was therefore decided that, to prevent the abandonment of the enterprise, a syndicate should be formed to take $400,000 of the stock, paying the nominal amount required upon subscription, and to hold this stock until support could be attracted. Should this syndicate be unable to place the stock, it was understood that its members would not be compelled to retain their holdings. The balance of the stock was allotted to Schenectady.[2]

On the face of it this was an anomalous proceeding. That there was no dearth of capital in the city is evident

[1] Laws of 1836, Chap. 427. [2] Troy Times, May 26, June 1, June 5, 1852.

from the fact that its merchants and capitalists had already built one railroad, captured another, and invested to some extent in the stock of a third. And the enterprise was not managed by irresponsible men. The leading spirit in the movement was Richard P. Hart, who had already brought much benefit to the city through his railroad activities. Hart was not only president of the Rensselaer & Saratoga and Schenectady & Troy Railroads, but he was also mayor of Troy. Moreover, his policies were approved by the common council. It was therefore a foregone conclusion that, whatever the liability of the members of the holding syndicate might be if the matter should ever come before the courts, no obstacles were likely to be encountered in dealing with the city government. But to carry out this plan, the consent of the legislature was necessary. This was obtained March 28, 1837, when Troy was authorized to borrow $500,000, and to subscribe for the entire capital stock of the Schenectady & Troy Railroad Company.[1] The success of this plan was the occasion of much rejoicing among the people of Troy; for they believed that they were now assured of a large portion of the Western trade, and that with the completion of the proposed Troy & West Stockbridge Railroad their city would become an important point on the main trunk line between Boston and the West. The fact that there would be no need for inclined planes with stationary power between Troy and Schenectady was taken as an indication that Albany's Mohawk & Hudson road, handicapped as it was by a steep incline at each end of the route, must soon be ousted from its position of advantage over the Western trade.[2]

Although the common council authorized the directors to begin operations at once, two years passed with nothing done, and it was necessary to get an extension of the charter. On May 14, 1840, the Schenectady & Troy obtained a loan of state credit to the amount of $100,000, and as security gave a first lien upon its property and franchise.[3] Work of construction was begun in July, 1840, the state loan

[1] Troy Times, May 26, June 5, 1852; Laws of 1837, Chap. 114.
[2] Troy Budget, March 31, 1837.
[3] Ibid., May 19, 1840; Laws of 1840, Chap. 299.

was received in October, 1841, and on November 3, 1842, the first train was run over the line. As was the case with most railroads, construction costs were in excess of original estimates, and on April 17, 1843, the authorized capital stock was increased by $150,000. Another act which was passed the same day authorized the city of Troy to borrow this amount and invest it in the stock of the railroad.[1]

Viewed in the light of the present, this railroad, which promised so much for Troy and its trade, was at best a weakling. But the facilities were adequate to the demands of traffic, as is evident from the following financial statement, which has been compiled from data in the annual reports of the City Chamberlain and the State Engineer and Surveyor:—

	a 1843.	1844.	1845.	1846.	1847.	1848.
Earnings:						
Passenger	27,210	31,069	28,245	29,867	33,233	31,827
Freight	872	1,578	3,008	6,720	12,319	14,261
Miscellaneous	380	217	2,049	570	570	938
Total	28,462	32,864	33,302	37,157	46,122	47,026
Expenses	35,325	26,281	30,530	31,545	38,337	46,717
Deficit	6,863	*6,583	*2,772	*5,612	*7,785	*309
New construction	None	7,280	1,782	965	14,819	(?)
Net deficit	6,863	697	*990	*4,647	7,034	(?)

	1849.	*b* 1850.	*b* 1851.	*b* 1852.	*c* 1853.
Earnings:					
Passenger	26,693	26,540	28,652	34,364	27,817
Freight	19,611	14,927	16,264	25,741	46,395
Miscellaneous	1,341	879	1,331	1,823	1,153
Total	47,645	42,346	46,247	61,928	75,365
Expenses	56,696	62,649	59,283	72,215	78,217
Deficit	9,051	20,303	13,036	10,287	2,852
New construction	13,241	7,136	1,001	4,477	13,350
Net deficit	22,292	27,439	14,037	14,764	16,202

a November 3, 1842, to January 1, 1844. *b* Year ending September 30. *c* Ten months ending July 31. * Surplus.

[1] Laws of 1843, Chap. 134–35.

The wide disparity between the earnings from freight and passengers is easily explained. The freight traffic was almost entirely local. In granting the charter of the Utica & Schenectady Railroad, the legislature, to protect the interest of the State in the Erie Canal, had enjoined that "no property of any description, except the ordinary baggage of passengers, shall be transported or carried on said road."[1] This prohibition was removed in 1844 to the extent that freight might be carried during that part of the year in which the canal was not in operation. Upon all such traffic, however, tolls were to be assessed by the commissioners of the canal fund at the rates which would have been charged, had the canal been used.[2] The effect of this law is evident in the immediate increase in freight earnings on the Schenectady & Troy. The seasonal variation of freight and passenger earnings is shown in the following table for 1846:—

	Jan.	Feb.	March.	April.	May.	June.
Freight	773	317	860	747	428	148
Passenger	782	682	1,230	2,338	2,961	3,347

	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Freight	66	62	103	251	581	2,384
Passenger	3,580	3,722	4,219	3,387	2,340	1,279

In 1847 permission was granted the Utica & Schenectady to carry freight throughout the year, but canal tolls were now to be required not only upon this road, but also upon all through traffic passing over the Schenectady & Troy and the Albany & Schenectady (Mohawk & Hudson).[3] There was an immediate falling off in the rate of increase in freight earnings upon the Schenectady & Troy. The requirement of canal tolls was a feature of the general railroad incorporation laws of 1848 and 1850. In 1851, however, "an act to abolish tolls on railroads" was passed,[4]

[1] Laws of 1833, Chap. 294.
[2] Laws of 844, Chap. 335.
[3] Laws of 1847, Chap. 270.
[4] Laws of 1851, Chap. 497.

and for the first time in its history the business of the Schenectady & Troy was placed upon a normal basis. The result is evident in the great increase of freight earnings in 1852.[1] The unusually heavy expenditures on account of new construction shown in the table under consideration were due to two causes. In 1844 there was need for the various additions to property which are required upon all new lines. The track was originally laid with flat bar rails, but in 1847 a law was passed which required all railroads in the State to be equipped with heavy iron rails within three years under penalty of forfeiture of their charters.[2] Hence the large amounts expended between 1847 and 1850.

But the greatest obstacle which this line was forced to meet was the community of interest between the Albany & Schenectady and Utica & Schenectady Railroads. Passenger schedules on the Utica & Schenectady were arranged so that the traveller from the West might continue his journey to Albany without delay, but if he chose to go to Troy he might be compelled to wait several hours at Schenectady for connections.[3] A similar practice was followed regarding the routing of freight. This became so great a source of loss and annoyance that in 1849 an appeal was made to the legislature in behalf of the Schenectady & Troy, but without result.[4] Operating at a loss, it was only natural that the Schenectady & Troy should have incurred a debt, and that this debt should have constantly increased. From the first the interest on the State loan of $100,000 had been assumed by the municipality,—equivalent to a donation of $6,000 each year; but in 1848 the railroad began to accumulate a debt of its own. This was for $14,000, at 7 per cent. In 1852 the amount had increased to nearly $93,000.

In return for its bounty Troy received an indeterminate

[1] The Schenectady & Troy paid into the canal fund a total of $74,954 in tolls; the Albany & Schenectady, $181,898. (S. C. Hutchins, in Chadbourne's Public Service of New York, i. 505, from data furnished by the auditor of the canal department.)

[2] Laws of 1847, Chap. 272.

[3] Troy Times, September 11, 1851; May 27, June 1, 1852.

[4] Senate Document (1849), No. 79.

reward. Real estate valuations increased; but one would need to be somewhat of an advocate to claim that this was the result of the building of the Schenectady & Troy. Something more definite can perhaps be learned of the burden upon the city in consequence of the financing of this project. The city tax rate was seventy cents on a hundred dollars in 1837. It rose to $1.30 in 1842, and to $1.75 two years later, but fell to $1.16 by 1852. With a view to escape from its weight of debt, Troy obtained authority in 1841 to establish a sinking fund into which an amount equal to 1 per cent. of the railroad debt should be paid each year. A year later an amendatory act made it the duty of the common council to appropriate $20,000 annually to this fund out of taxes. While the effect of this legislation would have been the ultimate redemption of the State bonds within the period of twenty-five years for which they were issued, the process was too slow to suit those whose property was being made the subject of heavy assessments. "The fact cannot be disguised," said the sinking fund commissioners in 1849, "that the funded debt of our City, reduced as it now is, is unnecessarily large when compared with our assessment roll, and should be further reduced as rapidly as practicable. . . . Our city debt exceeds eight per cent. computed upon our assessment roll. . . . No community will long remain satisfied unless under very peculiar circumstances, with a rate of taxation exceeding one per cent." [1]

This seems to have struck a popular note; for almost at once agitation was begun for the reduction of the debt through the sale of the Schenectady & Troy.[2] Two years later the matter was again brought to public notice by a series of articles by one who, after the fashion of the time, signed himself "Trojan." "We mean no imputation on anybody," said this writer, sententiously, "we speak of facts. A city corporation cannot manage a railroad well

[1] Communication from the Board of Commissioners of the Sinking Fund of the City of Troy to the Common Council of Troy, February 15, 1849, 11–13.

[2] Troy Budget, May 1, 1849.

and never ought to own one.[1] . . . The Troy and Schenectady Railroad is now and will continue to be, as long as the corporation manage it, . . . a financial maelstrom in which to whirl away the property and prosperity of Troy. Everybody says, except eighteen, the gentlemen of the corporation, better give the road away than run it at such a ruinous loss." If the city would not take action in the matter, he suggested that the tax-payers might begin proceedings to stay the collection of assessments, and so test the validity of the enabling act in the courts.[2]

These suggestions, of course, provoked discussion. "Civis" came boldly to the defence of the management in several unimportant particulars, but he was forced to admit that "Every succeeding set of Directors seem to have had worse success than their immediate predecessors."[3] "Argus" maintained that the plan of "Trojan" would impair the credit of the city, and as a substitute he proposed: "Let the Common Council elect a board of directors who are willing to give the necessary time and attention to the affairs of the road, none of whom ought to be members of the Council."[4] He seems to have had a clear understanding of the situation, as is evident from this diagnosis:—

> While I agree . . . that a municipal corporation cannot manage the operation of a railroad with any degree of economy or profit, and that the instance of the Schenectady Road is a glaring illustration of that fact, I am not prepared to say but that the road can be much better managed, even by our corporation, than it has been for a few years past. The fault of the management, or rather want of management of this road, lies primarily with the Common Council, but more directly with the Directors who receive their appointment by the Council. Some of these men work themselves into the Board of Directors by party management or intrigue, or through the influence of some friend who may wish to use them for some particular purposes and who may not be sufficiently popular to get the appointment himself. Many of these men have no further object in being Directors, than to secure a free passage over this and other connecting roads. . . . Look over the list of Directors now in office. Is a majority of them men who would be *naturally selected* as those best calculated, from the nature of their avocations, to manage the affairs of such a road? . . . In short let

[1] Troy Times, September 11, 1851.
[2] Ibid., May 25, 1852.
[3] Ibid., May 26, 1852.
[4] Ibid., June 1, 1852.

them choose *working* and not *riding* Directors and there will soon be some symptoms of reformation.[1]

A committee of heavy tax-payers on July 1, 1852, petitioned the common council on behalf of the citizens, asking that the road be sold for whatever price was obtainable as a means of relief to the city. The matter was referred to a committee representing the common council, the directors of the railroad, and the citizens at large; and a report was made January 16, 1853. At the meeting of the common council on January 24, this report was adopted, and a new committee was authorized to sell the stock, franchise, and property of the company for not less than $200,000. It is noteworthy that Russell Sage, who was at that time a director, was a member of both these committees. The sale was made March 1, at the price named, to Edwin D. Morgan, of New York, who was president of the Hudson River Railroad and a member of the State Senate (later governor, and United States senator). The terms were $50,000 down, and the balance in fourteen years, with 6 per cent. interest after five years.[2] The State loan of $100,000 (upon which Troy had already agreed to pay interest until March 1, 1858) was assumed by the consolidated company,[3] and finally paid off in 1867–68.[4]

The Schenectady & Troy at once passed into the combination of lines which took the name of New York Central; but, while the Albany & Schenectady received 17 per cent. premium on the exchange of stock, and other lines received from 30 to 50 per cent. the Schenectady & Troy stock was assessed 25 per cent.[5]

It remains to consider the share of public ownership in the responsibility for the failure of the Schenectady & Troy Railroad. The promoters possessed only such knowledge of railroad matters as they had been able to gain in the short

[1] Troy Times, May 27, 1852.

[2] Ibid., January 24, 1853; Troy Whig, January 25, 1853.

[3] Agreement consolidating Certain Railroads into One Corporation under the Name of the New York Central Railroad Company, 1853, 11.

[4] Comptroller's Report, 1868, 11.

[5] Agreement, ut supra, 20.

period in which railroads had been in use. Much, however, may be learned in ten years; and it appears that Hart and his associates were fully abreast of their time. Had they attempted to build a mono-railroad, or a line on piles, or launched out into any such impracticable scheme,—and there were at that time many plans of this sort to lead visionary promoters to failure,—they might properly be condemned. But they built a road which, there is contemporary evidence to show, was considered one of the best constructed lines in the State. In laying their plans, they hoped to make this line a section on a through route from Boston and New York to the West. They had no thought of depending for support upon what traffic would originate along the line; and it may be said in their behalf that they could not have been expected to foresee that the legislature would impose upon their road tolls for the benefit of the Erie Canal, or that it would require the rebuilding of the entire line with heavier rails. But the Mohawk & Hudson, or Albany & Schenectady, was also compelled to pay the oppressive tolls, and to reconstruct its track. Moreover, there can be no excuse for the failure to see that so long as the Utica & Schenectady Railroad should be forbidden to handle freight, the Erie Canal must continue to carry all of the Western traffic. There never was any expectation that goods would be taken from the canal at Schenectady and shipped over the railroad to Troy. Without through traffic there could be no adequate support for the line, and that this was appreciated by some of the people of Troy was evidenced by the failure of the men of means to give aid to the project. There was, therefore, no good reason why the railroad should have been built, for it was promoted in open defiance of economic conditions.

The advantage of the Albany & Schenectady over the Schenectady & Troy was the advantage of Albany over Troy. The key to the situation was direct rail connection with the projected lines from Boston and New York. When the Western Railroad of Massachusetts was extended to the Hudson over the route of the Albany & West Stockbridge

in 1842, and the Hudson River Railroad also reached East Albany nine years later, through traffic of necessfty passed over the Albany & Schenectady. The hostility of the Albany & Schenectady and the Utica & Schenectady was mainly due to the fact that their controlling interest was held in Albany or by capitalists friendly to that city. It had no reference to the fact that the Schenectady & Troy was owned by a municipality. In fact, so universal was the practise of building railroads largely out of local subsidies that the Troy enterprise seems to have attracted no particular attention. The conclusion is incontestable that the Schenectady & Troy without friendly connections must have failed under any form of ownership or management. This may be said without for a moment attempting to apologize for the management of the road. That it was wretched there can be no denial.

The story of the North Brookfield Railroad is easily told. From the completion of the Boston & Worcester the people of North Brookfield had eagerly reached out for a railroad connection with the outer world; but when the Western Railroad was extended from Worcester to Albany it avoided their town because of the heavy grades, and passed through East Brookfield, four miles distant. Attention was then directed to the northern route along which it was foreseen a railroad must some time be constructed from Boston towards the West, and in order to connect with this prospective line and at the same time obtain the desired connection with the Western road, the Barre & North Brookfield Railroad was chartered in 1852, to extend from the town of Brookfield through North Brookfield to Barre. In 1854 North Brookfield petitioned the legislature for leave to lend its credit to the proposed railroad, but because it was feared that favorable action in this case might prove embarrassing as a precedent, permission was refused. Meanwhile the people of the town were compelled to continue the use of stages and wagon freighters over the few miles separating them from the railroad. After nearly twenty years, agitation was re-

newed. It was now proposed to build a Worcester County Railroad from Worcester through North Brookfield to a point on the projected line of the Massachusetts Central in the town of Hardwick, but the financial upheaval of 1873 put an end to this project before a charter could be obtained.[1]

The Massachusetts general railroad act of 1874 provided the first practicable means by which North Brookfield could escape from isolation. It contained a section (copied from an act passed earlier in the same year and now repealed) providing that any town having less than 30,000 inhabitants and $3,000,000 assessed valuation might subscribe to railroad stock to the extent of 5 per cent. of its valuation.[2] The town's assessment roll amounted to $1,800,000, so it was now privileged to devote the sum of $90,000 to the support of any projected line. At once it was proposed that without waiting for outside co-operation, a railroad should be built to connect with the Boston & Albany (Western) at East Brookfield, with the ultimate purpose of extending northwards whenever the Central road should be put through.

Articles of incorporation of the North Brookfield Railroad Company were filed under the new law, January 14, 1875, and the locating survey was begun at once. The same month the town voted to subscribe for $90,000, or 90 per cent. of the capital stock. Yet after this action had been taken the voters were not definitely committed to the plan; for at a town meeting in May they instructed the provisional directors of the company to confer with the officials of the Boston & Albany in an attempt to induce them to build and operate the proposed line in consideration of a cash bonus of $50,000. Their proposition was rejected; but they received assurance that the Boston & Albany would operate their line when it should be built.[3] The final step was taken on June 14, when the town voted to borrow from the treas-

[1] Bates, Address, Tenth Anniversary of the Opening of the North Brookfield Railroad, 19–23.

[2] Acts and Resolves of 1874, Chap. 372 (*cf.* Ibid., Chap. 251).

[3] Bates, ut supra, 27–28.

urer of the Commonwealth the money required for the payment of the subscription, and pledged its faith for the repayment of the loan within ten years. As evidence of this debt, ten serial notes were issued, one to mature each year until December 29, 1884.[1] In February, 1877, a lease to the Boston & Albany was ratified, and the lessee engaged to operate the property for ten years from January 1, 1876, and to pay as rental 25 per cent. of the gross receipts after deducting $2,000 each year for the use of equipment.[2]

At the end of nine years the town found itself free from debt and in possession of nine-tenths interest in a railroad which had cost, including interest, about $125,000. In return it had received $23,000 in rentals, and its people, according to trustworthy estimates, had saved more than the total outlay in transportation costs.[3] But the important thing to remember is that the town had succeeded in its experiment, that its financial problems had been solved, and that its prosperity had been increased. This the people saw, and they were satisfied.

At the expiration of the lease in 1886, it was renewed for fifty years at a fixed rental of 3 per cent. Since that time two forces, the centralization of industry and the protective tariff, have driven the shoe manufacturing business from North Brookfield; but the town still retains its interest in the railroad which it built.

Against the failure of Troy may be set the success of North Brookfield. The history of their experiments has been outlined with a minimum of comment, and with a disposition to let the facts present themselves in their proper relation. The evidence points to but one conclusion,—that the question of public ownership is a question of expediency, and one not to be solved by any general formula.

FRED WILBUR POWELL.

NEW YORK.

[1] Report of the Selectmen of North Brookfield, 1875; North Brookfield Journal, June 28, 1875.

[2] Annual Report of the North Brookfield Railroad, 1877.

[3] Bates, ut supra, 38–39.

REVIEWS AND SURVEYS.

DAVENPORT'S VALUE AND DISTRIBUTION.[1]

THE author of the work before us follows rigorously the method of leaving nothing unnoticed which has been written in the same field. So much attention is paid to other writers, frequently in the way of appreciative criticism, more frequently in the way of generous commendation, that the reader is sometimes at a loss to know just what the author himself is trying to teach. One sometimes wishes that he had paid less attention to others, and had devoted himself more directly to the task of outlining the subject as it lay in his own mind. This method would have had the advantage of clearness, tho it might have lacked the quality of comprehensiveness. In addition to this difficulty the author's style has an individuality of its own, not unattractive, but somewhat unfamiliar to those who have not read his previous works. Therefore, the work as a whole is to be commended, and heartily, to mature students rather than to beginners. Not only are the first seven chapters devoted entirely to an exposition of the various cost concepts from Adam Smith to Cairnes, and the ninth to the early utility theory of Say, but all the other chapters contain a large amount of critical material, especially in the numerous and elaborate foot-notes, while Chapter XXI. is devoted to the clearing up of the mass of absurdities with which Hobson had succeeded in confusing himself.

The first clear purpose of the book as it reveals itself to the reader is the rehabilitation of cost as the basis of value. It is generally conceded that, in the case at least of reproducible commodities, it is the cost of production which

[1] Value and Distribution: A Critical and Constructive Study. By Herbert Joseph Davenport. Chicago. 1908.

limits supply and, by limiting supply, determines value. That the author means no more than this is stated with entire clearness. "In no case can the pains or the pleasures of production have significance for market value otherwise than as they bear upon supply,—that is, upon the relative volumes of goods seeking exchange against one another. *All market-cost doctrines are supply doctrines,* and explain value only in the sense and to the degree that supply explains value—that is, only upon the assumption that demand may, for the purposes of the case, be taken for granted" (pp. 87 and 88).

A special feature of the author's cost theory is its emphasis upon entrepreneurs' costs,—not that cost analysis must end there, but that all forms of cost are centralized or focussed in this form. It is sufficient for certain purposes to say that the price of an article must be high because the entrepreneur's costs are high; but this is not a complete solution until we know why entrepreneurs' costs are high,—why, for example, does he have to pay high wages, high insurance, high interest? This necessitates a further analysis, and raises the question, Why this insistence upon entrepreneurs' costs? For the simple reason that it is only as these various forms of cost are combined into a high total cost for the entrepreneur that they result in a high price for the product. This is well summed up in the author's statement that "cost is simply a money expression of the total of resistance to the entrepreneur's production" (p. 276). So far as this statement alone goes, the author is in entire accord with Marshall [1] and other leading writers in the same field, but few recent writers have laid such stress upon the entrepreneur function. It is interesting to note, as indicating possibly a new trend of thought, that another recent book—namely, Hawley's *Enterprise and the Productive Process*—also emphasizes the entrepreneur function and insists on approaching the whole subject of economics from the entrepreneur's standpoint.

Another interesting feature of the author's cost theory,

[1] Principles of Economics, 5th edition, pp. 339, 359.

which comes out in connection with his insistence upon the determining influence of entrepreneurs' costs, is his method of including under cost as a factor in determining supply certain items of which the book-keeper would never take account. Opportunities for gain in other occupations, for example, which the producer has to give up in order to enter upon the production of the article in question, must be reckoned under the factors which limit supply. Such items as these, in addition to wages and interest, must therefore be covered by the price of the article. The obvious reason is that, if the price is not high enough to enable the producer to make as much as he would make by doing something else, he would do something else, and not produce the article in question at all. Items of this kind are brought under a general doctrine of opportunity cost,—a doctrine first elaborated, it is believed, by David I. Green, to whom the author generously concedes the honor of having formulated it in entire definiteness, claiming only for himself the honor of first giving it systematic application.

This insistence upon the importance of entrepreneurs' costs, taken together with the doctrine of opportunity cost, leads to some real contributions to the general theory of value. Cost as a factor in determining supply must of course include every form of resistance to the continuation of the production of the article in question. From the standpoint, therefore, of his influence on supply, the largest profit-maker may be the marginal producer. As the author puts it, "it is, in truth, entirely credible that the largest profit-maker in the industry should be the marginal producer in that industry" (p. 92). That is to say, no matter how large a profit an individual entrepreneur may be making in a given industry, if he can make approximately as much in some other industry, he may be the first to leave his present industry as the result of a fall in the price of his product. The wheat-grower in western New York, for example, may be growing wheat at a very low cost, as an economist of the strict Ricardian school would figure it, and would then be regarded as securing a large surplus.

He would not ordinarily be considered the marginal producer of wheat, and yet, as the author clearly shows, he may really be the marginal producer, because he may have so many other opportunities for profitable farming that even a slight fall in the price of wheat would cause him to turn instantly to the growing of some other crop. He may in that sense be the marginal producer from the standpoint of the total supply of wheat. This would look like a negation of the doctrine that marginal cost determined normal value, were it not for the recognition of opportunities foregone as a factor in cost; in other words, were it not for the doctrine of opportunity cost. Since the surplus of the wheat-grower in western New York is mainly in the form of rent, this looks like a recognition of rent as a factor in cost, and so it is. This is, at the present stage of economic discussion, a distinct contribution to the theory, not in the sense that opportunity cost has been overlooked by previous writers, but in the sense that previous writers have not consistently followed the doctrine to its logical applications.

To be sure, the classical doctrine of the relation of rent to wages is in a sense a doctrine of opportunity cost. The employer, for example, must pay his laborers as much at least as they could produce for themselves on marginal land. In entering his employment, they may have given up opportunities to become independent land-owning farmers, in some cases, opportunities not only to secure an annual crop from the land, but also to secure a speculative rise in the value of the land.[1] Consequently, their wages must not only enable them to live, but must compensate them for that which they have foregone. Where opportunities of this kind are large, wages *must* be high: where they are small, wages *may* be low enough to approach the minimum of subsistence. All through the literature of economics there are to be found recognitions of the doctrine of opportunity cost in fragmentary form, and it has been applied piecemeal to a great many detailed questions. The

[1] Compare Clark, Distribution of Wealth, p. 86; Marshall, Principles of Economics, 5th edition p. 429.

chief contribution, therefore, of the work before us is that of gathering together and systematizing various parts of this doctrine and following it to its logical conclusions.

The other portions of the work are in general clear, but it seems to the reviewer that the author flounders hopelessly in his discussion of the capital concept, as several authors have floundered before him and as every one must who tries to define capital as he does. In the first place, he follows the lead of the impressionistic school of economics in attempting to merge land with capital. Then follow a number of technological details in the attempt to show that there is no essential difference between the two. Note especially the following: "for while it is true that labor and capital, when denied recourse to land in the non-value and purely concrete and physical sense, will yield no timber, it is at the same time true that they will give timber plentifully enough if strictly limited in their application to valueless land, that is, if confined to what, in economic and value sense, is no-land" (pp. 127 and 128). The idea that valueless land is no-land is of course a part and parcel of the impressionists' doctrine. Might not one as well say that valueless air is no-air, or valueless water no-water, from the economic point of view? All that can truly be said in any of these cases is that valueless air—that is, air which exists in sufficient abundance to satisfy everybody—is a non-economic good in the sense that we do not have to economize in its use. The same is true of valueless land. If there is valueless land, it is still land, but it is land which is not an object of economy. It may be quite true to say that valueless land is not capital, and would not figure in an inventory of wealth, wealth being measured on the basis of value and its quantity expressed in dollars. The present writer has insisted previously[1] that all discussions of the capital concept are futile until a clear understanding is reached of the nature of an economic quantity, its basis of measurement, and its form of expression. Valueless land, when measured on the basis of its superficial area, is a defi-

[1] See Quarterly Journal of Economics for May, 1907.

nite quantity of land. Measured on the basis of its value, it is not a quantity at all, or its quantity would be represented by zero. In the failure to distinguish sharply between these two quantitative concepts lies the whole difficulty of adequately defining the capital concept. For many purposes in economics, value is the only basis of measurement which we can use; but, if we blindly adopt this as the basis of measurement without a clear recognition of what it means, it will lead us into many absurdities, such as saying that valueless land is no-land, or that, if manufacturers were supplied with coal in such abundance that it would have no value, they would have no coal, and that a manufacturer who is so situated that he has valueless water—that is, water which is so abundant as to have no value—has no water.

It is, however, quite possible for certain purposes to define capital from the entrepreneur's point of view as the sum total of values which he must lay out in starting and conducting an enterprise, provided that we always remember what we are about. If he must use land and machinery and buildings, and must also pay several months' wages before he begins to sell his product, the whole fund which he must possess in order to start and carry on his industry successfully may for certain purposes be called capital, which then is merely the quantitative expression of all the things which it is necessary that he should possess. But this clearly means, among other things, a complete rehabilitation of the wage-fund doctrine. That is to say, it requires, other things equal, more capital, thus defined, to initiate and carry on an industry where wages have to be paid several weeks or months before a product begins to be sold than would be necessary if the product could begin to be sold at once. This additional quantity of "capital" necessary for the successful conduct of the business in the former case is, of course, "destined" for the payment of wages. But the complications arising from this method of defining capital are innumerable. From the standpoint of the entrepreneur, he possesses more capital if he owns his

land than if he rents it, because there is a larger initial outlay.

The author makes much of the contention that in a collectivist society, where there was no private property in either land or capital, the distinction between them would never be made and could not be made (p. 144). This is true enough; but what of it? We are now living under a competitive régime, with private property in both land and capital. The fundamental purpose of all economic analysis is not mere academic curiosity, but to discover its bearing upon the problems of economic justice. Is the present order of society just? It may not be the function of the economist to solve that problem, but economic analysis must at least precede the solution of the problem. One must make a clear and thorough-going analysis of what is, before one is in a position to make any suggestion whatever as to how things may be changed in the direction of what ought to be. Therefore, if there is any distinction between the ownership of land and the ownership of capital, it ought to be shown by our economic analysis. There can be no distinction shown except by a study of the economic characteristics of land and capital, especially on the side of supply. What are the factors which limit the supply of land, and what are the factors which limit the supply of capital? Are they the same or are they different? It is only by ignoring questions of this kind that any writer has ever been able to obliterate the distinction between the two forms of wealth.

It is quite conceivable that a collectivist community, like the Spartan Commonwealth, might collectively own a body of slaves to do all its work. It might then be claimed that there was no distinction between labor and capital. The labor would be placed in an inventory along with other productive factors. It might even be capitalized and its quantity expressed in money. For certain purposes this scheme of definition would be entirely satisfactory. But, if economics is to be a basis for a science of statesmanship,—that is, if it is to throw any light whatever upon questions

of public policy,—it would still be necessary to make a distinction between labor and capital, or, what amounts to the same thing, between laborers and instruments of production.

Under his discussion of capital as a competitive concept, the author states (p. 144) that under a collectivist economy "production would take place according to some sort of utility standard in consumption, and productive agents would be rated in esteem according to their efficiency in *utility* creation." Whereas, under the competitive economy, agents of production are rated in esteem according to their efficiency in *value* creation. It is implied that this is a real distinction. It is doubtful if there is any distinction at all. Under a competitive society an article which is produced in large quantities, so that the consumption of the article approaches the point of satiety, has, of course, little value per unit. A factor of production which will yield a given number of units of the commodity would be rated in esteem at a low figure because of the low value of its product. Would it not also be rated in esteem at a low figure under a collectivist economy? If the collectivist community has almost a satiety of the article in question, an agent of production which will yield a given number of units of it would certainly be rated in esteem at a lower figure than if there were a scarcity of the article. That is, the agent of production would be less highly prized by the community in the former than in the latter case, its loss would not be so severely mourned. There would be no essential difference in the rating in the competitive and in the collectivist community. Market value and effective utility are very closely related. The real difference, if such there be, rests upon the assumption that under a competitive economy there will be great inequalities in the ability to purchase, and that these inequalities are themselves unjust or unwarranted in any final analysis of utility. If there are a few men with immense fortunes either inherited or won by speculation or other useless methods, an agent of production which supplies them with a very trifling gratification might be lowly

rated in esteem, and command a high price in spite of that; that is, it might bring a high price on the market for the sole reason that these opulent consumers of its product possess a great many other things to give in exchange for it,—things which they possess in such abundance that they are even less esteemed than the product in question. But such conditions are not in any way essential to a competitive economy. We may have a competitive economy in which there is no wealth in the possession of any one who has not himself earned it, assuming that the family, including certain non-productive members, is the unit. To be sure, certain things which, to the philosophical mind, appear to be useless baubles, are frequently highly evaluated on a competitive market. They would also be highly esteemed in a collectivist economy, unless we assume that all its members have philosophical minds.

The interest problem is, of course, the strategic point in the whole scheme of distribution, both from the theoretical and practical standpoint. Theoretically, it is the most elusive of all the problems in distribution, and, practically, it is the question upon which the social policy of the future is likely to turn. Discussions of socialism, for example, are fruitless and beside the point until the problem of the nature and cause of interest is settled. Unfortunately, this is the least satisfactory part of the author's discussion. He follows in the main the Austrian analysis, with some added emphasis upon the cost of capital. Nothing, so far as the reviewer can discover, is added to the discussion which had not been said before, and some of the most significant contributions to the theory are practically ignored.

One of the best chapters in the book—and it is a most excellent chapter—is on Rent and Cost. His handling of the concept of marginal rent is especially good. His position on this point is fairly well indicated by the following revision of Ricardo's statement: "Ultimately, corn is not high because rent is paid for corn land, but rent must be paid, because, to command the land for corn, a rental possible from some other product has to be refused." This

does not, of course, prove that prices would be lower if rents were remitted or taxed away by the government. Rent would still exist in either case: they would simply accrue to other persons or powers. All it means is that, if conditions were such that rents did not exist, prices would be different. In other words, if certain lands would not yield a rent for market gardening, more land would be devoted to corn growing, and there would therefore be more corn, and the price of corn would be lower. But, if the government were to appropriate rents to itself by the method of the single tax, the same land which is now used for market gardening and other similar purposes would still be so used, there would be no more land used for corn growing, and prices would not be effected. One exception ought, however, to be noted. Land which is now held out of use for speculative purposes would then be forced into use, and a larger product would accrue. But there is no reason for supposing that this would affect one crop rather than another or disturb the relative proportions among the various products, tho it might conceivably do so.

The author consistently adheres to the doctrine that the whole problem of distribution is a problem in value, as the present reviewer had previously affirmed.[1] Therefore, the work begins and ends with considerations regarding the laws of valuation. There is also an excellent concluding chapter, giving a summary of the conclusions of the whole book. One thing which will impress the reader is the large number of question marks with which the work is literally sown. These marks are so distributed as to make the reader take stock of his ideas, and will probably force him to revise his views on a number of topics. The book is the work of a keen critic, who is at the same time a constructive thinker.

T. N. CARVER.

[1] Carver, Distribution of Wealth, Introduction.

THE CIVIC FEDERATION REPORT ON PUBLIC OWNERSHIP.

THE relative merits of municipal and private operation of public utilities have for many years provided students of economics and government with their most fruitful field of controversy. No question in the domain of public administration has been discussed with greater interest and zeal on both sides, and none has disclosed the existence of ably supported opinions so utterly irreconcilable and at the same time of such unquestionable sincerity. In the economic literature of the past decade, discussions of this subject bulk large; yet it may reasonably be doubted whether the major part of them have rendered much service save to becloud the true issues involved and to render more exasperating the task of those who, without special knowledge, approach the problem in the hope that their honest doubts may be resolved.

One reason for this situation is to be found in the plain fact that most contributions to the discussion have been characterized by an obvious bias, which, if it has not rendered them worthless or worse, has at any rate seriously impaired their effectiveness. A more formidable obstacle to sound and rational conclusions, however, has been presented by the utter inadequacy and the controverted character of the material which has until very recently been available as a basis of study. There has been, it is true, an abundance of data, compiled from time to time by the friends and foes of municipal socialism; but these statistical compilations, besides being for the most part narrow in scope, have in many cases been open to question in point of accuracy and fairness, and have more often been brought together to buttress arguments already framed than to afford an adequate basis for scientific analysis. Students of political science who appreciated this situation were gratified, therefore, when the National Civic Federation

of the United States announced, some three years ago, that it proposed to get together impartially and on a comprehensive scale the concrete facts relating to municipal and private operation of public utilities, so far as such facts could be obtained from a thorough investigation of the experiences of selected cities in Europe and in America. This announcement was followed by the appointment of a large and representative Commission on Public Ownership and Operation; and under the direction of this body a detailed study of the subject was made during the years 1906–07. The results, in three bulky volumes, are now at the disposal of those interested.[1]

The investigations carried on under the auspices of the Federation covered important cities in two countries only,—the United States and the United Kingdom; for the commissioners decided with practical unanimity that the dissimilarity in political and other conditions between the United States and the countries of Continental Europe rendered the experience of the latter quite inferior in value for purposes of comparison,—a decision which may not secure concurrence in all quarters. On the whole, however, this course was the wiser, for, if the commissioners had endeavored to cover the larger field, the thoroughness of their work would doubtless have been seriously impaired. Furthermore, the investigators confined their attention to four important municipal services,—gas, electricity, water, and transportation,—the first two utilities being studied in both countries, the third in some selected cities of the United States only, and the fourth in some British municipalities exclusively. To the various interesting subsidiary experiments which many British cities have been making in the field of municipal trading,—such as public ownership of docks, abbatoirs, workingmen's dwellings, and so forth,—the commissioners found it impossible to devote any time.

[1] Municipal and Private Operation of Public Utilities: Report to the National Civil Federation, Commission on Public Ownership and Operation (3 vols., New York, 1907), pp. 489, 1230, 768.

Despite these broad limitations, however, the investigations covered some forty municipalities in all, of which about two-thirds were cities of the United States. In each case expert engineers and accountants were employed to make the necessary detailed examinations, two experts being usually set to work upon the affairs of the same plant in order that all data relating to efficiency and cost of service might be not only complete, but accurate beyond any reasonable doubt. The commissioners themselves, besides supplementing this expert scrutiny by their own observations, took pains to study the history of each undertaking, the legislative background, the structure and functions of the local governing authorities, and various other phases, such as the relation of public or private operation to local politics or to the local labor situation. The lines of investigation with reference to each public or private service fell thus into four main channels: an inquiry into the history of the service and a summary of the legislative provisions relating to its establishment and development; a study of its engineering and technical problems and of the ways in which these had been solved; an examination of the finances of the service with a view to determining the relative economy of the two forms of management; and, finally, a close observation of the relations between the service and the political organization and activities of the municipality.

After the investigations in each division of the work had been completed, the material was carefully digested by sub-committees selected for the purpose; and upon their reports the commission as a whole came with substantial agreement to the following general conclusions:

1. Public utilities, whether in public or in private hands, are best conducted under a system of legalized and regulated monopoly.
2. Public utilities in which the sanitary motive largely enters should be operated by the municipality.
3. The success of municipal operation of public utilities depends upon the existence in the city of a high capacity for municipal government.

4. Franchise grants to private corporations should be terminable after a fixed period, and meanwhile should be subject to purchase at a fair value.

5. Municipalities should have power to enter the field of municipal ownership upon popular vote under reasonable regulation.

6. Private companies operating public utilities should be subject to public regulation and examination under a system of uniform records and accounts and of full publicity.

7. The Committee takes no position on the question of the expediency of either private or public ownership. The question must be solved by each municipality in the light of local conditions. . . . In some cities the companies may so serve the public as to create no dissatisfaction and nothing may be gained by experimenting with municipal ownership. Again, the government of one city may be good and capable of taking care of these public utilities, while in another it may be the reverse. In either case the people must remember that it requires a large class of able men as city officials to look after these matters. They must also remember that municipal ownership will create a large class of employees who may have more or less political influence.[1]

Most of these conclusions will provoke no dissent. Some of them, indeed, have long since become commonplaces of political science; as, for example, the conviction that there can be no effective competition between natural monopolies operating in the same area, and that the only satisfactory alternatives are regulation, on the one hand, and direct control, on the other. A half-century ago many European cities attempted to solve the problem of securing efficient public service by enfranchising rival companies, and a little later some American municipalities sought the same end by granting to single corporations unrestricted privileges in perpetuity; but in both cases the experiments proved so decidedly unsatisfactory that neither policy nowadays makes any claim to serious consideration.

Again, in removing from the debatable list all those public services in which the "sanitary motive" is dominant, and, recognizing that such utilities have special claims upon the policy of direct operation, the commission has

[1] **Municipal and Private Operation of Public Utilities, vol. i. pp. 26, 27.**

merely given adherence to what has become, during recent years, a well-grounded conviction in both countries. In this field, however, its investigations are of distinct service in that they have established beyond question, through a detailed examination of the water services of six large American cities, that this utility presents in favor of its municipalization several vital arguments which do not appear at all in the case of other public services (such as lighting and transportation), and hence that questions of policy affecting the two classes of utilities should not be approached in the same way. As the facts show, the city is everywhere the largest individual customer of the water service, and as such has a direct pecuniary interest in the economy of its management. Quality and cheapness of supply, furthermore, are intimately related to almost every provision made by the municipal authorities for the protection of the city's health and for the promotion of cleanliness; while upon the efficiency of the water supply at critical moments a very important civic department—the fire protection service—is forced to place absolute dependence. The case for municipal ownership and operation of the water service may thus be readily established upon other than purely economic grounds. Indeed, the arguments in its favor are not such as may be effectively rebutted by evidence that municipal operation is quite the more costly of the two forms of management. That the expediency of municipalizing this service is actually receiving consideration upon its own individual merits, and that questions of policy relating to it are being differentiated, as they should be, from problems affecting the other chief municipal utilities, seems to be proved by the steady extension of direct municipal control to this particular service,—a feature which the commissioners noted as a phenomenon of civic development in both countries.

As to the relative merits of municipal and private operation with reference to those utilities in which sanitary considerations are not influential,—notably the lighting

and transportation services,—the commissioners found themselves unable to concur in any broad conclusion. The outcome was doubtless a source of disappointment to those among them whose strong personal predilections for or against the policy of public ownership are matters of common knowledge. That no comprehensive generalizations could fairly have been made, however, will be patent to any one who takes pains to scrutinize carefully and in a judicial spirit the evidence gathered by the commission's experts and presented fully in the body of the report; for, altho these investigators found manifest differences in point of relative efficiency and cost of service between plants in different cities, these differences were as well marked between services operated under the same form of management as between those operated under different forms. No satisfactory ground was afforded, therefore, for any general conclusion that either policy could lay valid claim to superiority in point of either quality or economy of service. Nor may the average layman hope for much better success in reaching any definite opinions; for he will find in the wealth of material which was industriously collaborated for the use of the commissioners so much that is highly technical in its nature that a serviceable interpretation of it is not without serious difficulties. Comparative cost of operation, for example, is a matter which one might readily think susceptible to facile analysis. But an examination of the statistical data on this phase of the question will quickly convince the reader that it is one of the most complex of the various factors involved, for any attempt to compare fairly and accurately the operating costs of different plants opens up questions of relative allowances for depreciation, contributions to sinking funds, extensions of service charged to annual expenses, and many like features, with regard to which no two services pursue identical policies. Moreover, as the commissioners readily realized, comparisons of operating costs were vitiated by differences in local conditions, such, for instance, as the geographical envi-

ronment of the particular service. Thus in the case of gas plants it was found that variations in costs of operation were attributable in large part to differences in the proximity of the plants to the coal fields and in the facility with which their by-products could be disposed.[1] On the general question as to whether economy in the purchase or the use of materials is more likely to be assured under one system of management than under the other, the data collected by the financial experts of the commission afford no reasonable ground for any definite conclusion. This question remains as far from determination as before.

With reference to the cost of labor as one of the important elements in the determination of comparative operating charges there has been so much diversity of opinion among writers as to give the investigations pursued by the commission on this point a special interest and significance. In the cities of the United Kingdom there was found to be little or no difference in the remuneration given to "skilled or partly skilled labor" in municipal and private plants. In both services the customary union rates of wages were paid, altho in most cases the labor unions themselves were not given any express recognition by either management. Hours and conditions of labor were, on the whole, somewhat more favorable to the workmen in the municipal undertakings; but the differences in these incidents were not found to be of substantial importance. With respect to "common, unorganized labor," however, the evidence showed very conclusively that the municipality is much the more generous employer. In most British boroughs the authorities had established a "minimum wage" which the commissioners found to be distinctly higher than the minimum

[1] "The Sheffield company, which is able to buy good gas and coke-making coal at a lower price than any other company or municipality, and which finds a market for its coke at its very doors, . . . sold its by-products for more than the cost of its coal, oil, and other supplies. As no other undertaking was so fortunate, a comparison as regards prices and costs between Sheffield and any other plant not so well situated would be misleading and unfair." Municipal and Private Operation of Public Utilities, vol. i. p. 204.

in private employment. This discrepancy they account for by suggesting that, since the British municipal plants secure a somewhat better grade of unskilled labor, the difference in remuneration represents "little more than a comparison between the city's rate for the choice among laborers and the general rate for those private undertakings which employ men in perhaps the least requited of occupations."[1]

In the cities of the United States both skilled and unskilled labor were found to fare much better under municipal than under private management,[2] the municipalized services being, as a rule, characterized by shorter hours of labor, a larger number of special privileges, and a greater laxity of discipline. In addition they gave to labor in its lower grades a rate of wages which the investigators found to be, almost without exception, much above the general level prevailing in private enterprises of the same kind in the same locality. One can scarcely venture to assert, moreover, that this liberality is justified by any superiority in the quality of the common laborers employed by the city. On the contrary, the evidence gathered by the commission bears upon almost every page its testimony to the inferiority of that class of unskilled labor which most readily seeks and most easily secures a place on the pay-rolls of the American municipality. Nor can it be said that this situation has been brought about by the systematic efforts of labor organizations, influential tho these sometimes are. It is rather in the activity of party politicians who respond so readily to the influence of wage-earners as individuals that one finds the real key to the situation.

In both countries municipal services were found to be avowedly open to union and non-union men alike. Only one municipal plant in the United States and only two

[1] Municipal and Private Operation of Public Utilities, vol. i. p. 61.

[2] The only exceptions were found in the Southern cities, such as Atlanta, where colored laborers who have no voting power receive $1.00 per day of ten hours.

in Great Britain had any formal agreement with a labor union,[1]—an indication that the municipal authorities of both countries have been firm in their formal allegiance to the principle of open shop. At the same time the data presented by the commission afford ample evidence that, despite this ostensible absence of discrimination, the union interests are almost everywhere in control of the labor situation in municipal plants, and that labor leaders have little difficulty in forcing civic authorities into compliance with their demands. As one of the union officials in Chicago naïvely put it, "We tell them that these are our terms: they're politicians, and they know what to do." Indeed, the report embodies a wealth of testimony in support of Major Darwin's assertion: "The words municipal ownership do not suggest the real points at issue. When should labor be directly employed by the municipalities is the vital question,"[2] and this finds recognition in the fact that one of the commissioners,[3] whose personal partiality to the policy of municipalization is well known, freely declares his conviction that "the proper method of dealing with employees is the most difficult and critical problem of municipal ownership."

An excellent illustration of the danger involved in this phase of municipal operation is afforded by the evidence which the commission presents concerning the organization, activities, and motives of the Municipal Employees Association of Great Britain. This body, whose members are united to influence municipal elections in favor of those candidates who are ready to promise a betterment in the conditions of municipal employment, possesses a membership already running far into the thousands, and increasing, according to its official returns, at the rate of several thousand each year. "We have never

[1] The electricity department in Chicago, the Birmingham gas-works, and the Manchester tramways.

[2] Municipal Ownership (1907), Introduction, p. ix.

[3] Professor J. R. Commons, "Labor and Politics," Report, Pt. I., vol. i. p. 99.

been defeated by a municipal body yet," declares an official circular of this Association: "if they decline a request to-day, we are up and at them again to-morrow." In some British cities, indeed, the activities of this organization have become so prejudicial to the interests of economy and of labor discipline that the drastic step of entirely disfranchising all municipal employees has been seriously proposed, and has obtained support even among true friends of municipal operation, like Mr. James Dalrymple, manager of the Glasgow municipal tramways.

Admitting all this, however, there are some who will urge, doubtless, that "the balance sheet of a city's welfare cannot be stated in figures," and that the policy of giving unduly favorable terms to municipal employees finds ample justification in its "beneficial industrial reactions,"—in the service which it renders to society in holding before the eyes of private employers an example of the satisfactory relations that may be established and maintained when the employer displays, in tangible fashion, an interest in the personal well-being of the employed.[1] The evidence accumulated by the commission, however, seems entirely to refute the assertion that the municipality, either in the United States or in Great Britain, is a "less impersonal" as well as a more generous master than the private corporation; for it shows clearly that the cities have taken little or no unusual care for the health, safety, education, recreation, or other incidents of their laborers' welfare. So far as the investigations went, the sanitary arrangements of municipal plants were found to be, on the whole, no better than those of private enterprises. Not one of the British or American municipal services of any kind incurred additional outlay for the provision of unusual securities against accidents; not one presented any systematic arrangements for the education of its employees or for affording them recreation in spare hours; and not one had any comprehensive system of providing

[1] George Bernard Shaw, The Common Sense of Municipal Trading (London, 1904), especially pp. 34–42.

sick benefits or pensions of any sort. The securities for redress against arbitrary dismissal the commissioners found, moreover, to be no more effective under one system than under the other, and even in British cities they secured no satisfactory evidence to support the common impression that the rank and file in municipal plants have greater permanence of tenure than those of private concerns. In the Glasgow tramway service, which is properly regarded as a model of efficient municipal operation, it was found that nearly half the employees had been in the service of the city for less than three years.

Recognizing, very properly, that success or failure in the operation of public utilities is intimately related to the structure and calibre of the city government, the commissioners gave a good deal of study to the organization and functions of the local governing bodies both in England and in America. The results of this examination are set forth by Professor F. J. Goodnow in his paper on "The British Municipality" and by Mr. Walter L. Fisher in his essay on "The American Municipality," the writers in each case emphasizing in clear and very concrete fashion the fundamental differences in administrative capacity between the municipal authorities of the two countries. Professor Goodnow lays adequate stress upon the divergence between law and practise in English borough administration, between the democratic provisions regarding the sufirage and the "aristocratic character of municipal institutions," between the decentralization of legal power and responsibility and the concentration of actual authority in the hands of a few experienced administrators. A municipal system which vests all legislative and administrative powers in the hands of a ponderous council whose members are nominated by party organizations and elected from the wards of a city for short terms, which gives the direct supervision of all municipal enterprises to large and cumbrous committees of this council, which permits such committees virtually to dictate all appointments without any check in

the way of civil-service regulations,—such a system has indeed little which seems to make for economy or efficiency. Yet, as Professor Goodnow has shown, it has proved to be entirely compatible with the selection of a high grade of councillors, with the organization of committees which display unusual administrative capacity, and with absolute non-partisanship in the conduct of the important municipal departments. The simple fact is that in England healthy local traditions have maintained those features which American cities have not been able to preserve even through the application of the most stringent legislative safeguards. Thus it happens, as Professor Goodnow points out, that, altho the council's committees are reconstituted annually, it is not uncommon to find men who have served on the same committees for ten, fifteen, or even twenty years,—long enough, at any rate, to acquire a thorough familiarity with the departments under their control. Thus it is, also, that the higher municipal employees, altho they are removable by a simple majority vote of the council without even the formality of a hearing, are in fact never removed without good cause.

Mr. Fisher's study of the governing authorities in American cities has led him to portray a picture of a somewhat different tone, the main outlines of which are so familiar that they need scarcely be reiterated here. While Mr. Fisher does not gloss the real evils in the administration of American civic affairs, his analysis is particularly welcome as affording in short compass a sane and conservative discussion of the subject, free from the extravagances of statement too frequent in the writings of municipal reformers, and displaying proper discrimination between those evils which are organic and those which are merely incidental. Taking into account, therefore, the likelihood that the policy of direct municipal operation would find serious stumbling-blocks in some of the features of American local government to which Mr. Fisher directed special attention, the commissioners express their con-

viction that this policy can reasonably hope for success only when, as a preliminary, provision is made (1) for the appointment of an executive manager with full responsibility, holding his position during good behavior; (2) for the exclusion of political influence and personal favoritism from the management of the undertaking; (3) for the separation of the finances of the enterprise from those of the rest of the city; and (4) for exempting from the debt limit the bond issues necessary for the establishment of revenue-producing utilities, such bonds to be a first charge upon the property and revenues of the undertaking. These measures, the commissioners believe, are indispensable postulates. Yet in no American city where the merits of direct operation were under discussion did it appear that they were so regarded by the municipal authorities.

Altho the material gathered by the commission will prove of the highest value to serious students of the subject, those who expect to find in the report the final word on any important phase of the question will meet with disappointment; for even by the commissioners themselves the same facts were interpreted in widely different ways. Mr. Edward W. Bemis, for example, found basis for the conclusion that "on water, gas, and electricity, the municipal plants have done better for the consumer than the private plants in anything like the same situation"; that "municipal ownership has marked advantages financially"; and that "under proper safeguards it has important social and political advantages." "After long experience with both public and private operation of municipal monopolies," he goes on to assure us, "public opinion in Great Britain is overwhelmingly in favor of public ownership and operation." His colleagues, Messrs. Charles L. Edgar and William J. Clark, on the other hand, express with equal assurance their conviction that "no intelligent reader of the voluminous record of the commission's work will fail to conclude that it clearly proves municipal ownership to be productive of many and seri-

ous ills with little or no compensating good." With regard to popula sentiment in Great Britain their judgment is that "there has been a divided opinion among the press and people as to the wisdom of municipalities conducting trading operations; no unanimous approval where it exists, and no great demand for it where it does not exist."

If, indeed, there is any one thing which the report makes clear, it is the entire futility of expecting any general measure of agreement upon the main question at issue. Considered as an elementary question, there are no inherent reasons why service under one system should not be as good or as economical under one system as under the other. But the question is never elementary: it is in every case complicated by local conditions to which the determination of local policy must have direct relation. It is entirely in keeping with the emphasis laid upon this correlation that the commission as a whole has refrained, and wisely refrained, from any attempt to pass judgment upon the merits of public ownership as a question of general policy.

WILLIAM BENNETT MUNRO

NOTES AND MEMORANDA.

SEX RATIOS AT BIRTH IN TOWN AND COUNTRY.

Almost half a century ago Wappaeus and Legoyt[1] noted the statistical fact that the relative number of boys to girls born in the country was greater than in the urban districts. Quetelet[2] interprets the Belgian data in a similar way, making the natural preponderance of boys over girls at birth appreciably less in the cities and large towns than in the country generally. It would seem that this interesting generalization, quite independently of the similar ones respecting illegitimate and still births, may now be accepted as established. Fabris, for example, states that in Italy in 1876 the proportion of male to female births was as 105 to 100 in the cities, while it was as 107 to 100 in the rural communes.[3] Levasseur[4] notes it likewise in France, the proportion of male to female births, 1801–1865, being 103 to 100 in the Department of the Seine; 104.3 to 100 in other cities; and 105.3 to 100 in the rural districts. In his History of Human Marriage, Westermarck[5] cites a large mass of testimony from Düsing to the same effect; and since this time Düsing has greatly re-enforced his earlier testimony from examination of the data for Prussia.[6] Examination of the more recent German data brings striking confirmation, elimination being made of both illegitimate

[1] A. F. Weber, Statistics of Cities, pp. 290–294.

[2] La physique sociale, i. p. 168.

[3] "Saggio sulla fecondità dei matrimoni e sulle proporzioni dei due sessi nei nati," Annali di Statistica, serie 2a, i., 1878, p. 103.

[4] La population française, ii. p. 197. [5] Page 471 *et seq.*

[6] "Das Geschlechtsverhältniss der Geburten in Preussen," Staatswissenschaftlichen Studien, Bd. III., Heft 6. Jena, 1890.

and still births, with their proportions each peculiar to itself.[1] For the German Empire at large, the male to female legitimate and living births are as 105.6 to 100, the proportion being slightly lower in Saxony and Würtemberg. Yet among the fifty-five large cities,[2] six in 1895 and seven in 1896 manifest an absolute excess of female births. Düsseldorf figures among these in both years. Furthermore, in 1895 seven cities have less than 1 per cent. excess of boys at birth; ten less than 2 per cent; and only thirteen out of the 55 have a proportion higher than 103 males to 100 females. For 1896 the proportions vary, but the law still holds good. The only exception to this law which I have discovered seems to be in Russia, where the contradiction is flat and positive.[3] In 39 out of 49 governments the proportion of boys to girls born is higher in city than country, thus reversing the law. Nor are the data inadequate, altho they do not make clear distinction as to natural and still births, as they should. Among 1,326,757 births the proportion of female to male births is stated to be 92.63 in city and 95.59 in country. In passing, it may be noted that two governments, Wilna and Ekaterinoslav, each with over a million inhabitants, yield the abnormal proportion, as a whole, of absolute excess of female over male births. Perhaps the most elaborate collection of statistics on the general topic of sex relativity at birth is afforded by the compilation in Statistique générale de la France.[4] A total of 649,415,411 births for all civilized countries having registration systems is included.

This law, that more females relatively to males are born in city than in country, being, as Westermarck puts it, "an established fact," what explanations are offered to account for the phenomenon? A lowered vitality is suggested by

[1] Note Nichols's conclusions later in this connection.

[2] Statistisches Jahrbuch deutscher Städte, Breslau, vii., 1898, p. 266.

[3] A. v. Buschen, Bevölkerung des russischen Kaiserreichs, u. s. w. Gotha, 1862.

[4] Statistique annuelle du mouvement de la population, xxxiii., 1903. This material is critically analyzed by J. B. Nichols in Memoirs, American Anthropological Association, i. pp. 245–300.

Fahlbeck[1] in his study of the Swedish nobility, wherein he finds a steady increase in the proportion of female births with continued inbreeding. Experience of the French colonies in the tropics would seem to substantiate this reasoning.[2] Among the rather degenerate French at Réunion, Martinique, and Guadaloupe the excess of female births was extraordinarily abnormal. Buschen[3] noted a correspondence between a low birth-rate and a tendency to relative frequency of female births, which does not jar with this hypothesis. Nichols[4] would apparently explain it on purely statistical grounds. The greater excess of males in still-births being an accepted law, and the city registrations being far more complete, the net result of a greater *apparent* relativity of females would follow. That the phenomenon represents a balance or offset by Nature of the greater excess of the death-rate among males is stated by Willcox.[5] Benini,[6] along with a number of other suggestive contributions, advances the general proposition that females tend to predominate in first births,—note that most illegitimate births are also first births; and that cities are more apt to be centres of immigration in which more first marriages are contracted. The steady decrease in the excess of male births in Italy as an accompaniment of emigration is a necessary corollary. Mayr[7] apparently follows Westermarck, holding that the greater excess of male births in the country "appears to be connected with the relatively less crossing and greater inbreeding." I have endeavored to apply this reasoning to the registration statistics of Michigan, realizing, however, the vagueness of the data. Where both parents were native born, the proportion of males to females at birth was least; rather

[1] Bull. Inst. Int. de Statistique, xii. p. 170.

[2] Levasseur, La population française, ii. p. 194.

[3] *Op. cit.* [4] *Op. cit., supra.*

[5] American Journal of Sociology, i., 1896, p. 737.

[6] "Di alcuni punti oscuri della demografia," Giornale degli Economisti, vii., 1896, pp. 117–127.

[7] Statistik und Gesellschaftslehre, ii. p. 186.

abnormally low, that is, under 105 to 100. Where both parents were foreign born, the proportion of males was abnormally high, often 108 to 100; while, for so-called mixed marriages, the proportion of males was higher still. The statistical basis was, however, too narrow to warrant any conclusion. Only one other explanation for the general phenomenon occurs to me, which I suggest not so much for its plausibility as to render the catalogue of explanations more complete. It is sociological in character. May not the relatively greater coherence of the family as a social unit in the country lead to greater persistence in child-bearing in the hope of securing a male heir? City families may be more content to let issue rest with the birth of one or more girls; while a country family, especially in agricultural districts, will continue fruitful until a boy arrives. Such persistence would evidently produce a greater excess of males as a natural result.

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THE AUSTRALIAN TARIFF: A SUPPLEMENTARY NOTE.

In the article upon the Australian Tariff in the August (1908) issue of this Journal (vol. xxii. p. 591) there is reference to a case pending to test the constitutionality of the Excise Tariff Act of 1906, which involved a fundamental principle of the New Protection. On June 20 the Federal High Court, in a decision supported by the chief justice and two of his four associates, declared the law unconstitutional for four reasons, the most important of which was that it usurped the right of each state to regulate labor conditions within its own borders. This decision was followed, August 5, by another, declaring invalid a section of the trade-mark law giving trade unions a property right in a union label. These two decisions considerably restrict the power of the central Parliament to pass labor laws by

indirection. In case of the excise regulations the Government has indicated its intention to apply for an amendment to the constitution, and Mr. Reid, the leader of the Opposition, who is a free-trader, is reported to have given his support to this proposal.

On the other hand, the High Court gave a decision against New South Wales in the wire-netting case mentioned in the same article (p. 600).

VICTOR S. CLARK.

THE CLEVELAND REFERENDUM ON STREET RAILWAYS.[1]

On October 22 the people of Cleveland voted by 38,249 to 37,644—a majority of 605—to reject the franchise given by the Council as a security grant to the Cleveland Railway Company on April 27. At this writing some defects or mistakes in the use of voting machines in the sixty precincts where they were used may lead to throwing out some precincts or may otherwise change the result, but this is not likely.

The space at hand permits only a brief summary of the causes and of the possible consequences of this vote. The events leading up to the election, whose outcome surprised friends and opponents alike, were these:—

(1) The strike in May left great bitterness among a minority, but a very active minority, of the trade-unions of the city. A thousand striking conductors and motormen, who refused the chance to go back to work until after their places had been filled, devoted all their time, under pay, apparently, of some interested parties, in printing literature and actively canvassing against the Traction Company.

(2) Not as many cars were run by about fifteen per cent. as during the corresponding months of last year by the old company. The Traction Company thereby was able to

[1] See the article on the Street Railway Settlement in Cleveland, in this Journal for August, 1908.

keep up the property as required by the lease, and pay the necessary rental, but was obliged, under a straight three-cent fare and universal transfers within the city limits, to cut the service because of two temporary conditions: the hard times, and the impossibility of collecting a three-cent fare without the use of pay-enter cars and a suitable fare-box at the entrance of the car. The depression is the worst in Cleveland for twelve years or more, and here, as anywhere else, this fact lessens the number of street-car rides. On the other hand, business is slowly improving, and will surely be good in a year or two. A return to the normal would enable the company, through the increased earnings, to give service as ample as was ever given. Furthermore, the company was rapidly transforming its cars into the pay-enter type, with an excellent fare-box just invented by Mayor Johnson. One line on which these boxes have been in use shows an increase of seventeen per cent. in the receipts with scarcely any increase in expenses. There is every reason to believe that this increase would apply to all the lines as soon as the cars were ready next year, and this alone would enable the service to be improved by as much as it had been cut. But the people were impatient, and did not wish to wait the few months necessary for bringing to pass either of the above solutions.

Had the holding company secured the property at its structural value (about two-thirds of what was paid for it) or had it been willing to raise the fares to about three and one-half cents, the service could have immediately been made all that was desirable, and then the fare could have been reduced to three cents on the resumption of better times or a completion of the new pay-enter cars. But the company did not realize how much the people objected to the reduction in service.

(3) The company discontinued or greatly reduced the service on a few lines or portions of lines which did not pay and where the passengers were near other lines.

(4) The company was generally thought to have been so confident of its motives and of the confidence of the

people in it, born of seven years of championing their cause, so confident, also, of the wisdom and ultimate popularity of the many changes made in the routing of its cars,—that it showed too little tact in dealing with the wishes or prejudices of the people.

(5) Some felt that, because the promises as to service did not appear to have been fully kept during the first five months, therefore the promise of rapid improvement of service in the future would also not be kept.

(6) The nature of the franchise or security grant was not understood by ten per cent. of the voters. They did not realize that the right to charge five cents, with six tickets for a quarter, was merely a security to the Cleveland Railway Company in its lease to the Traction Company. The latter company was not only pledged morally and publicly to charge but three cents, unless, if it should become necessary to charge a higher rate, after direct approval by the Council and the people, but the stock had been all trusteed October 12. Under the terms of this trusteeship, arranged by three of the most prominent attorneys in northern Ohio, including Judge Taylor of the United States Circuit Court and two attorneys usually hostile to the Traction Company, the directors were forever prevented from pocketing any profits. If there were any dividends, after such improvement of the service and reduction of fares and such purchase for cancellation of stock in the company as the directors might desire, these dividends must go to the lighting of the city parks, streets, and public buildings. If anything should prevent this use of the profits, they were to go to the maintenance and extension of the public parks and playgrounds.

Many, however, believed that a vote for the franchise was a vote in favor of a charge of five cents, while they had for years been educated to favor three-cent fares. This popular misapprehension was vastly stimulated by circulars issued broadcast before election by political and personal opponents of the mayor.

(7) At the election itself thousands appear to have

voted against the franchise who thought that they were voting to sustain the mayor and his policy. In sixty of the precincts where voting machines were used, the ballot was not made to read "For the franchise" or "Against the franchise," as the campaign speakers and public prints had explained would be done. In the voting machines the voters, to their surprise and without any previous instructions, found themselves face to face with a pointer which must be turned to the words "Yes" or "No." Many were thus confused. Moreover, scores of machines, for some reason, did not register all the votes cast. If the votes of those precincts are thrown out, the whole result of the election will be changed.

(8) The fear of political enemies of the mayor that the three-cent fare experiment would ultimately give good service, and thereby enhance the prestige and political power of the mayor, had a large influence.

(9) A large amount of money was used by the opposition. Whether it came from street railways in other cities which feared the spread of the Cleveland experiment or from certain other local public-utility corporations which feared the application of the holding company or municipal ownership idea to them, or from a few large stockholders of the old Cleveland Electric, or from some other source, is not known. The expenses of the tent meetings—practically the only expenses incurred by the friends of the holding company—were borne by the City Democratic Campaign Committee.

No one can yet forecast the future. A written agreement between Mayor Johnson and Mr. Goff, the representative of the old Cleveland Electric Railway Company, provided that, if the security grant should fail, the properties should revert to their original owners, the Forest City, or old three-cent fare line, on the one hand, and the Cleveland Electric, with its rapidly expiring franchises, on the other. This eminently just provision was not embodied in any contract between the companies, and its validity is disputed by

attorneys for the Cleveland Electric. The latter maintain that they bought out the Forest City line, and are now the owners of both the three-cent fare line and the other, and can operate the entire system, giving three-cent fare on the Forest City line and higher fare on the other lines. If, however, the technical or strictly legal provisions are to be followed, the attorneys for the mayor maintain that the lease of the entire Cleveland Railway Company, including the Forest City, to the Municipal Traction Company, did not have any provision for a reversal of the properties of the lessors in case the security grant was not ratified. The city administration, having a two-thirds majority in the Council, and with the majority of the people still in opposition to higher rates of fare, and with the State law requiring a referendum for all new street railway franchises, is in a position to control to a very large degree the situation.

Education along street railway lines, and, in fact, along all civic lines, is making rapid progress in Cleveland. The government is free from corruption and unusually efficient. It is not likely that the holding scheme of street railway operation, as a means of eliminating private profits without some of the dangers of direct municipal operation, will be for any long time checked because of a defeat by less than one per cent. of the votes cast on the precise proposition which was up for settlement on October 22.

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